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For Index to Advertisements see Page 782.

For Literary Contents see Page 794.

# INDEX TO ADVERTISEMENTS.

(THOSE WITHOUT NUMBER OF PAGE DO NOT APPEAR IN THIS ISSUE.)


| | PAGE. |
|---|---|
| Aird, J. ... ... ... ... ... ... ... Tubes | 808 |
| Ashbury Railway Carriage and Iron Co. (Ltd.) Railway Carriages, &c. | 781 |
| Austin, J. B. ... ... ... ... ... Mineralogist | 781 |
| Bandell, H. E. ... ... ... Agent for Foreign Houses, &c. | — |
| Bank of Africa, (Ltd.) ... ... ... ... ... ... | 781 |
| Banking ... ... ... ... ... ... ... ... | 804 |
| Bennett, Sons, and Co. ... ... ... Fuse Manufacturers | 808 |
| Bowes-Scott and Western ... ... ... Mining Machinery | 808 |
| Bute Works Supply Company (Limited) ... ... Steel Rails, &c. | 794 |
| Business Cards ... ... ... ... ... ... | 805 |
| Campbell-Johnston, R. C. ... ... Mining Engineer | 781 |
| Calvert, Albert E. ... ... ... Mining Engineer | 781 |
| Cannock Chase Colliery Company ... ... ... Coal Exporters | 781 |
| Cassel Gold Extracting Co. (Ltd.) ... MacArthur-Forrest Process | 805 |
| Champion Rock Borer Co. ... ... ... ... Rock Borers | 784 |
| Clarkson, T. ... ... ... ... The "Rapid" Sampler | 783 |
| Clarkson-Stanfield Concentrator (Ltd.) ... Dry Concentration | 795 |
| Companies and Legal Announcements ... ... ... | 804 |
| Cornforth and Co. ... ... ... ... Share Dealers | 781 |
| Cotton Powder Co. (Ltd.) ... ... ... ... Explosives | 808 |
| Davey, Paxman and Co. ... ... ... Mining Machinery | 786 |
| Davies, Henry ... ... ... ... Mining Engineer | 781 |
| Davis and Son ... ... ... Mining, &c., Instruments | 785 |
| Daw, A. and Z. ... ... ... Mining and Civil Engineers | 781 |
| Daw, A. and Z. ... ... ... ... ... Rock Drills | 806 |
| Delta Metal Co. (Ltd.) ... ... ... ... Metal | 784 |
| Dixon and Co. ... ... ... ... Iron Roofs and Buildings | 763 |
| Dillman, Sons, and Co. ... ... ... ... Embrocation | 784 |
| Felten and Guilleaume ... ... ... ... Wire Ropes, &c. | 807 |
| For Sale ... ... ... ... ... ... | 804 |
| Francis and Jenkins ... ... ... Copper Works Ladles | — |
| Fraser and Chalmers (Ltd.) ... ... ... Mining Machinery | 782 |
| Frictionless Engine Packing Company ... Engine Packing, &c. | — |
| Galloway's (Ltd.) ... ... ... ... ... Steam Boilers | — |
| Gates Ironworks Co. ... ... ... ... Rock and Ore Breaker | 806 |
| Gilkes and Co. ... ... ... ... ... Turbines | — |
| Green, G. ... ... ... ... Ore Dressing Machinery | — |
| Halse, E. ... ... ... ... ... Mining Engineer | 781 |
| Hett, C. L. ... ... ... ... ... Turbines | 783 |
| Holman Bros. ... ... ... ... Rock Drills and Compressors | 785 |
| Howes, S. ... ... ... ... ... Turbines | — |
| Humboldt Engineering Works Co. ... ... Mining Machinery | 783 |
| Humble, S., jun. ... ... ... ... Hand Power Fan | 783 |
| Huntington, Professor ... ... ... Instruction in Assaying | 781 |
| Ingersoll-Sergeant Drill Co. of America, Rock Drills and Compressors | 782 |
| Ireland, James ... ... ... *Colliery Ready Reckoner* | 805 |
| Jones, J. A. ... ... ... ... ... Mining Engineer | 781 |
| Kitto, B. ... ... ... ... ... Assay Offices | 781 |
| Krupp Grusonwerk ... ... ... Ore Extraction Machinery | 783 |
| Larmuth, T., and Co. ... ... ... Mining Machinery | 806 |
| Lancashire Patent Belting Co. ... ... Mining Specialities | — |
| Lancaster and Tonge ... ... ... ... Steam Pistons | 783 |
| Lewis and Sons ... ... ... ... ... Tubes | 782 |
| Lloyd and Lloyd ... ... ... ... ... ... Tubes | — |
| Maclean, J. Grant ... ... ... ... Share and Iron Broker | 781 |
| Marsden, H. R. ... ... Stone Breakers and Ore Crushers | 808 |
| Martin and Pethybridge ... ... ... Assay Laboratory | 781 |
| Merry and Co. ... ... ... ... ... Assayers | 781 |
| Merton and Co. ... ... ... ... ... Aluminium | 784 |
| Newton, Chambers and Co. (Ltd.) ... "Ideal," Sanitary Protection | 783 |
| Nobel's Explosives Co. (Ltd.) ... ... Water Cartridges, &c. | — |
| Pacific Mining Agency and Trust Company... Commission Agency | 794 |
| Parkin ... ... ... ... ... ... Signal Bells | 807 |
| Pass and Son ... ... ... Buyers of Lead Ashes, &c. | 794 |
| Phosphor Bronze Co. (Ltd.) ... ... ... Bulls Metal, &c. | 784 |
| Piggott and Co. ... ... ... Welded and Rivetted Pipes | — |
| Publications ... ... ... ... ... ... ... | 805 |
| Robey and Co. ... ... ... ... Engines and Ore Crushers | — |
| Roburite Explosives Co. (Ltd.) ... ... ... Explosives | — |
| Ropeways Syndicate ... ... ... ... Aerial Wire Ropeways | 807 |
| Rose, James ... ... ... ... *New Guide to the Iron Trade* | 805 |
| Sales by Auction ... ... ... ... ... ... | 804 |
| Schram and Co. ... ... ... Rock Drills and Compressors | 784 |
| Seward, William ... ... ... ... Share Dealer | 781 |
| Shipping ... ... ... ... ... ... ... ... | 804 |
| Smith, Chas. ... ... ... ... ... Mining Agent | 781 |
| South African Trust and Finance Co. (Ltd.) ... Investments, &c. | — |
| Spencer, John ... ... ... ... Iron and Steel Tubes | 785 |
| Stanley, W. F. ... ... ... Mathematical Instruments | 782 |
| Stewart and Clydesdale ... ... ... Iron and Steel Tubes | — |
| Symons, Brenton ... ... ... ... ... Mining Engineer | 781 |
| Tacknote ... ... ... ... *Form of Licence to Explore* | 805 |
| Tangyes Limited ... ... ... ... Engines, &c. | — |
| To Let ... ... ... ... ... ... ... ... | 804 |
| Tuck and Co. (Ltd.) ... ... ... Packing Manufacturers | — |
| United Asbestos Co. (Ltd.) ... ... ... ... Asbestos | 804 |
| Unity Safety Fuse Co. ... ... ... ... Safety Fuse | — |
| Vivian's Boring Co. (Ltd.) ... ... Boring Machinery | 781 |
| Walker Brothers ... ... ... Air Compressing Engines | — |
| Wanted ... ... ... ... ... ... ... | 804 |
| Watson, P. and Co. ... ... ... ... Share Dealers | 781 |
| Wellington and Co. ... ... ... ... Rock Drills | 807 |
| Weatherdon, J. H. ... ... ... ... "Monarch" Rock Drill | — |
| White, William ... ... ... ... Mining Engineer | — |
| Wiggin and Co. (Ltd.) ... ... ... ... Nickel Refiners | 794 |
| Wood, Charles ... ... ... ... Portable Railways, &c. | — |



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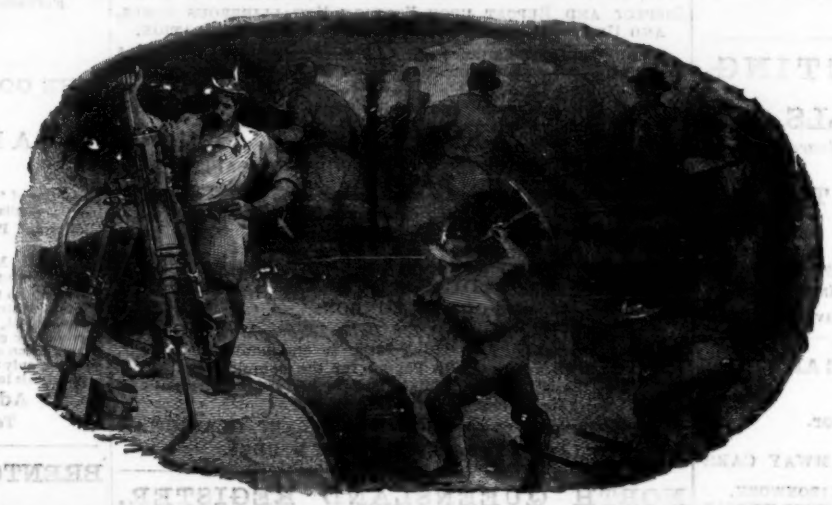

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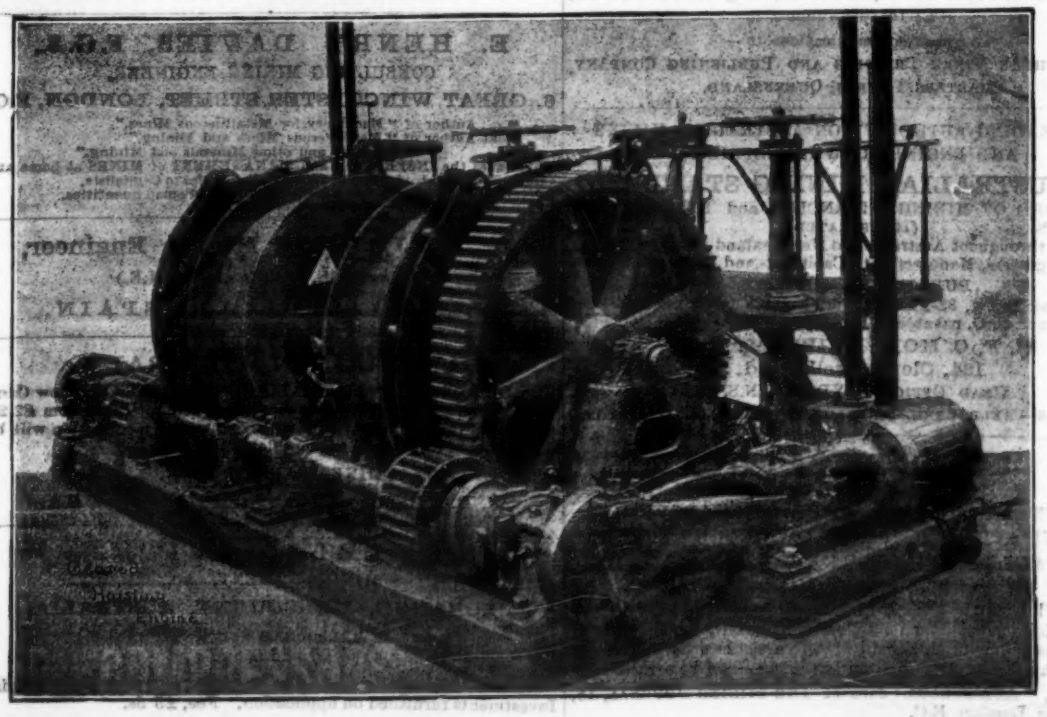

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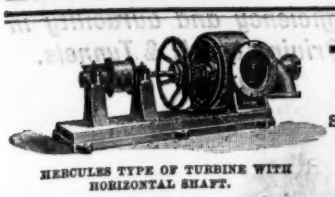

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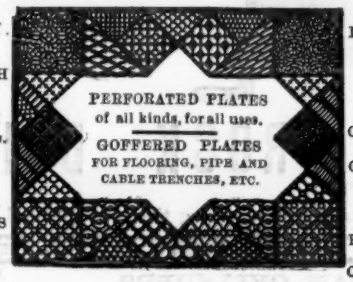


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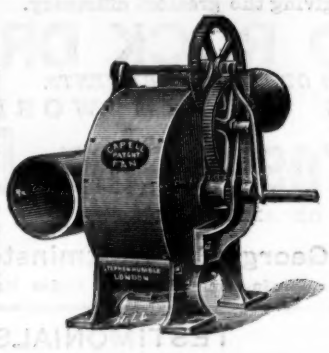

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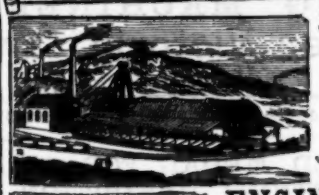
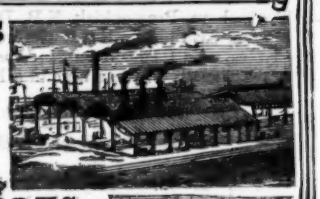


IRON ROOFS AND BUILDINGS FOR



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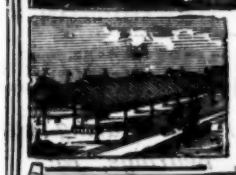

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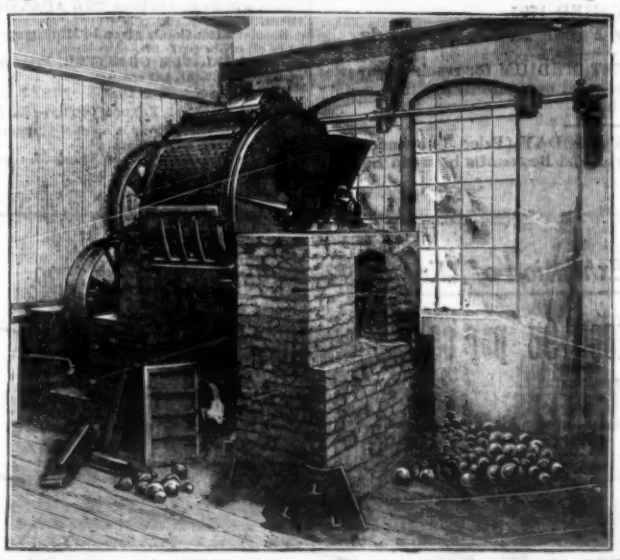

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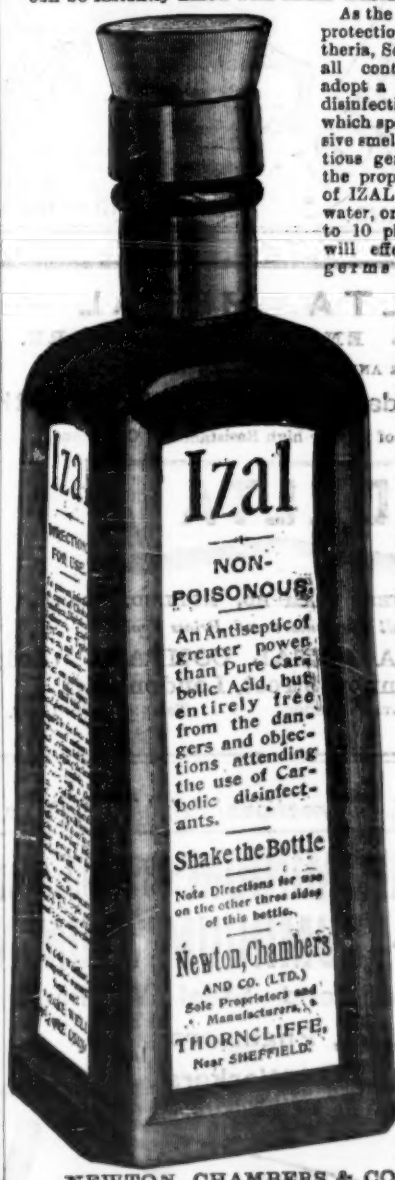
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An Antiseptic of greater power than Pure Carbolic Acid, but entirely free from the dangers and objections attending the use of Carbolic disinfectants.
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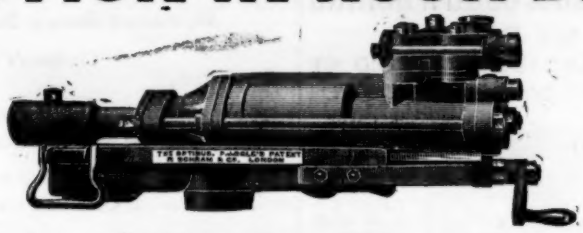
Every information relative to the progress of lode-tin mining in the Wild River district (termed by geologists "The Cornwall of Australia") can be obtained by communicating with the undersigned. CHARLES JENKIN.

"Herberton Advertiser" Office, Herberton, September, 1893.

# REVOLUTION IN ROCK DRILLING



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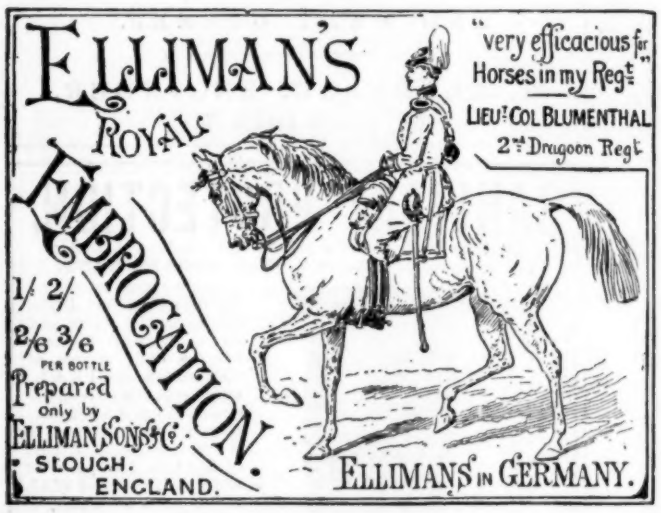


### TESTIMONIALS.

**From His Grace the Duke of Rutland.**

Belvoir, Grantham, Dec. 1st, 1879.

SIRS,—Elliman's Royal Embrocation is used in my stables. I think it very useful. RUTLAND.

Master of the Belvoir Hounds.

**From Lord Haddington.**

Tyningham, Prestonkirk, N.B., December 27th, 1885.

SIRS,—Elliman's Royal Embrocation is used in my stables, and I consider it *indispensable* in any stable, but especially in the stable of a Master of Hounds.

HADDINGTON.

Master of the Berwickshire Hounds.

**From the Earl of Harrington.**

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HARRINGTON.

Master of the South Wilts Hounds.

**From Lord Greville.**

Clonhugh, Mullingar, Ireland, June 22nd, 1892.

SIRS,—Elliman's Royal Embrocation is used in my stables, and always gives the greatest satisfaction.

LORD GREVILLE.

Master of the West Meath Foxhounds.

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STRONGER AND MORE DURABLE THAN STEEL.

**Specially Adapted for MINING WORK**

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The Mining and Industrial Journal of Mexico.

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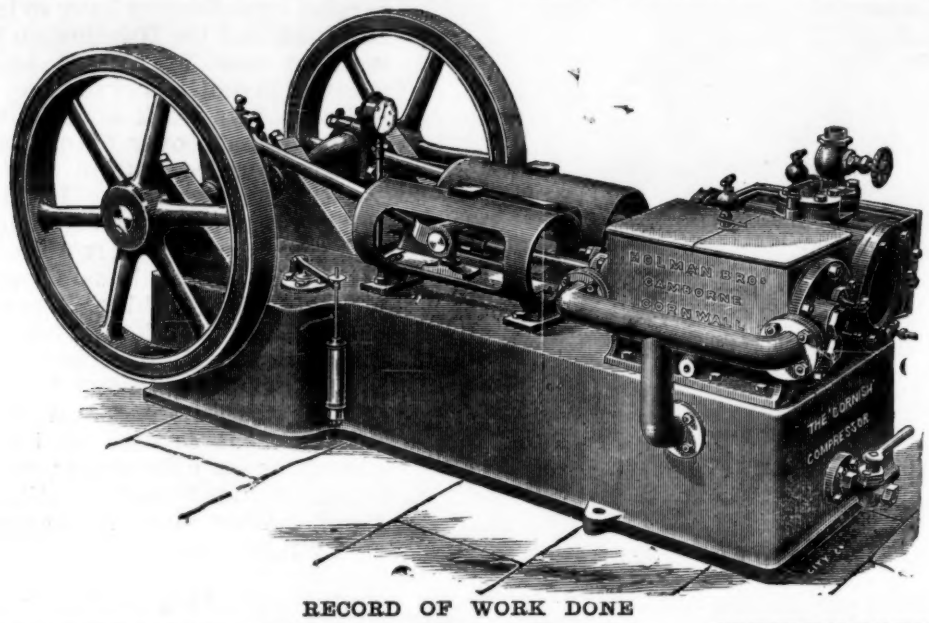


RECORD OF WORK DONE

At Botallack Mine, St. Just, Cornwall, **TWELVE MEN** with **TWO** new Patent **CORNISH ROCK DRILLS** drove, sunk, and rose **288 FATHOMS** in **12 MONTHS**, equal to five times the Speed of Hand Labour

At Wheal Grenville Mine, Camborne, Cornwall, **SIX MEN** with **TWO** new Patent **CORNISH ROCK DRILLS** started from the **150 FATHOMS** level and put up in **EIGHT MONTHS** a **11 FEET** by **5 FEET PERPENDICULAR RISE 46 FATHOMS 5 FEET 6 INCHES**, and about midway drove **1 FATHOM 5 FT.** No communication of any kind was effected until holing to the Shaft brought down from surface.

**Estimates for ROCK BORING PLANT and GENERAL MINING MACHINERY on Application.**

London Representative: Mr. E. M. TOUZEAU, Leadenhall Buildings, London, E.C.

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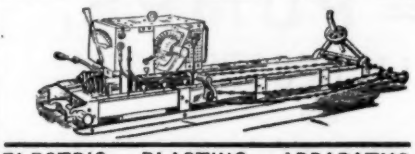
WORKED EITHER BY ELECTRICITY OR COMPRESSED AIR.

**OVER 500 IN USE.**

FULL PARTICULARS UPON APPLICATION.



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HIGH OR LOW TENSION SYSTEMS.

REVISED CATALOGUE UPON APPLICATION.
SEC. A. MATHEMATICAL, MINING INSTRUMENTS, MINERS' LAMPS, &c.
SEC. B. ELECTRICAL PLANTS AND FITTINGS.

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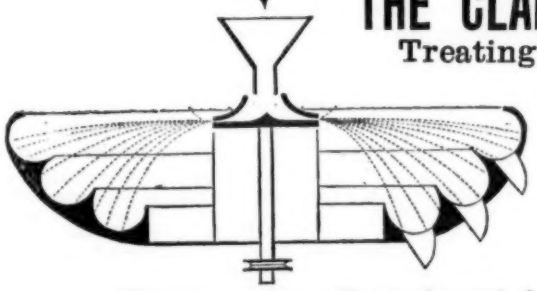
**Highest Award at the Mining Exhibition, 1890.**

# DRY CONCENTRATION.



## THE CLARKSON-STANFIELD CONCENTRATOR (LIMITED),

are successfully Treating the ores of Gold, Silver, Copper, Lead, Tin, Zinc, Cobalt, &c., &c. of all degrees of fineness, from 30 to the finest meshes by their **NEW MACHINERY** which may be seen in operation at

## 6, COLONIAL AVENUE, MINORIES, LONDON, E.

Homogeneous substances, such as Emery, Glass, Sand, Sulphur, Black Lead, &c., graded according to size in one operation.

## Terms for Experimental Concentration, and for Supply of Machines on Application.


## NEW PATENTS.

LIST of APPLICATIONS for New Patents relating to Mining Metallurgical, Engineering, Railway and kindred matters, specially compiled from official sources for the "Mining Journal" by Messrs Rayner and Company, Patent Agents, 27, Chancery Lane, London, W.C., who will forward all information regarding them free on application.

12846 John Hoythorn, 67, St. Vincent Street, Glasgow.—Improvements in water tube boilers and in tube fastenings for such boilers.—July 3.
12851 Carron Company and Alexander Robertson, 62, St. Vincent Street, Glasgow.—Improvements in steam hammers.—July 3.
12869 William Phillips Thomson, 6, Lord Street, Liverpool.—Improvements in or connected with steam generators.—July 3.
12916 William Scott, 77, Chancery Lane.—Improvements in separation and concentration of minerals and the like, and in apparatus thereof.
12917 Alfred Julius Boult, London.—Improvements in or relating to reversing gear for steam and other motors.—July 3.
12,925 James Blake, Marine House, Redcar.—Improvements in steam generators.—July 4.
12,939 Denis Embleton and Gilbert Glossop, Leeds.—Improvements in pneumatic stamps for crushing ores, &c.—July 4.
12,954 William Leedhouse, Richard Norbury, and Charles Edward Trickett, 64, South Grove Road, Sheffield.—An improvement in miners' and other picks and tools of a like kind.—July 4.
12,966 Arthur Ross, 55, Market Street, Manchester.—New or improved means for laying coal dust in coal mines.—July 4.
12993 Alexander Cruickshank, 40, Chancery Lane, London.—Improvements in the electrolytic separation of gold from ores.—July 4.
13019 Samuel Johnson Beaman and James Dear, 70, Market Street, Manchester.—Improvements in furnaces for burning sludge, slurry, and like materials.—July 5.
13038 James Lakin and Charles Harry Page, 55, Chancery Lane, London.—Improvements in the manufacture of wrought iron.—July 5.
13048 Joseph Bedford, 78, Fleet Street, London.—Improvements in the manufacture of steel.—July 5.
13058 Fritz Zinsen, 433, Strand, London.—Improvements in multiple drilling machines.—July 5.
13080 George B. Sharples, 85, Hopehill Road, Glasgow.—Improvements in gear for hydraulic and other valves and the like.—July 6.
13123 Carl Martini, Southampton Buildings, London.—Improvements in roof or tops for furnaces, &c.—July 6.
13184 Thomas Hampton, Bank Buildings, George Street, Sheffield.—Improvements in the manufacture of steel.—July 7.

### SPECIFICATIONS PUBLISHED.

9247, Keene, packing for piston rods, &c., 1893; 11,442, Dempster, furnace, 1893; 12,342, Haigh, force pumps, 1893; 14,455, Sumner, steam boilers, 1893; 14,564, Macar, steam boilers, 1893; 15,380, Johnson, steam generators, 1893.

The above specifications published may be had of Messrs. Rayner and Company 27, Chancery Lane, London, at 1s½. each including postage,

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*The date given is that by which tenders must be delivered, in nearly all cases further information can be obtained on application at the addresses given. In applying for such the name of "The Mining Journal" should be mentioned as the original source of the information, concerning which further particulars are required.*

### HOME CONTRACTS.

**Coke, July 24** (*London, E.C.*)—For the supply and delivery of 800 tons of gas coke, and 200 tons of hard foundry coke at Negapatain, for the South Indian Railway Company. Tenders to be left with M. H. W. Notman, managing director, 55, Gracechurch Street, E. C.

**Railway Stores, July 24** (*London, S E.*).—For the supply of (1) general stores, comprising hardware, iron, metals, leather goods, oils and colours, hemp and cotton goods, glass, telegraph stores, and sundries; (2) locomotive and engineering stores, comprising boiler mountings, copper and iron plates, spiral springs, and brass boiler tubes; (3) stationery, comprising printed forms, paper, ink, tickets, and sundries, for the South Indian Railway Company (Limited). Specifications and forms of tender may be obtained at the company's offices.

**Volute and Spiral Springs, July 25** (*London, E C.*)—For the supply and delivery of volute and spiral springs, for the East Indian Railway Company, as per specification and drawing to be seen at the company's offices. Tenders are to be sent to Mr. A. P. Dunstan, secretary, Nicholas Lane, London, E.C., marked "Tender for Volute Spiral Springs," not later than 1 p.m. on 25th inst. For each specification a fee of £1 1s. is charged which cannot under any circumstances be returned.

**Reservoirs, July 30** (*Nelson*).—For the construction of two storage reservoirs, and other works in the Ogden Valley, about five miles from Nelson, for the Corporation. Plans and specifications to be seen at the Town Hall, Nelson, or at the offices of Messrs. John Newton and Son, Carlton Buildings, Cooper Street, Manchester.

**Underframes, July 30** (*London, E C.*)—For the supply of underframes, bogie trucks, and body ironwork, for the Bombay, Baroda, and Central India Railway Company. Tender must be made on form, copy of which, with specification, can be obtained at the offices, 45, Finsbury Circus, on payment of £1 1s., which will not be returned.

**Rolling Stock, July 31** (*London, N.*)—For the supply of 30 or 50 new carriages and 12 four-wheeled 15-ton goods brake vans, for the Cheshire Lines Committee. Plans may be seen and specifications and forms of tender obtained on application to Mr. Thomas Parker, jun., loco. superintendent, M. S. and L. Works, Gorton.

### FOREIGN CONTRACT

**Rails, &c.** (*Copenhagen*).—For the supply of 9000 tons of rails and 1750 tons of connecting parts, for the State Railways in Denmark. For conditions apply, by letter, to Comptoir der Staatsbahnanlagen, Havenlowsgade 19, Copenhagen.

## OUR INQUIRY COLUMN.

### TO CORRESPONDENTS.

*Correspondents will please take note that all communications will in future be answered in this column and not through the medium of the post. All questions and replies should be accompanied by the name and address of the writer.*

### REPLIES.

S. B.—We cannot recommend them.

A. W.—Yes; the market for them has been extremely dull for a considerable time now.

SHAREHOLDER.—You might do so with advantage.

B. H.—The statutory meeting has not been held yet.

INVESTOR.—We have no reason to doubt your statement.

C. B. S.—There is no free market for the shares.

OLD SPECULATOR.—We would advise you to wait a little longer, and see how matters turn out.

SPES.—We cannot advise you to sell at a loss. Hold on, for a time, at least.

NITRATE OF SODA.—Mr. Thomson Aikman, jun., reports July 16: The fortnight's arrivals for Europe reach about 35,000 tons, of which about 13,000 tons called for orders. The only business off coast was in a small cargo in the early part of the fortnight at the equivalent of about 8s. 10½d. per cwt., while 8s. 9d. was refused for large. Two large April sailings are reported at 8s. 9d. per cwt., and the same price has been refused for May-June shipment. In more distant positions a considerable business is reported in September to November shipments at the equivalent of 9s. to 9s. 2½d., the close being firm, sellers asking higher rates. The value of both spot and forward delivery in Hamburg has risen to the equivalent of cargo value. Deliveries in continental ports continue fairly active, and promise to reach those of last year during July. Cable quotations are:—Cost 6s. 3d. to 6s. 4½d. per quintal for near to October shipment, while business in December-January shipment is reported at 6s. 1½d. per quintal; exchange 11½d., and freights weaker at 23s. 9d. per ton, with about 20,000 tons register disengaged spot tonnage.

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## Engineers, Colchester.

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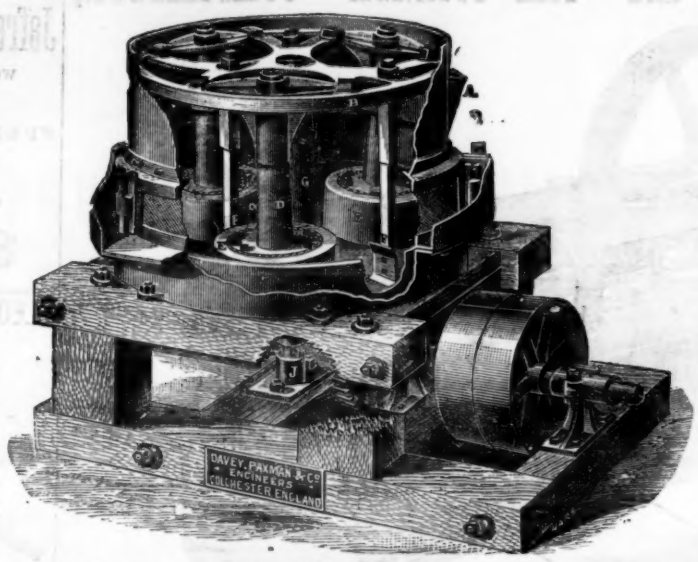
DAVEY, PAXMAN & Co., are SOLE Licensees and Manufacturers of the Huntington Patent Centrifugal Roller Quartz Mill for the whole World, excepting the United States of America, Mexico, and Australasia.

Telegraphic Address:

**"PAXMAN, COLCHESTER."**




Huntington's Patent Centrifugal Roller Quartz Mill for fine pulverizing in Concentration.

LONDON OFFICE

78 [late 139], QUEEN VICTORIA STREET.

D. P. & Co., after a great number of careful experiments have so improved and perfected the Huntington Mill that it must now be classed among the greatest inventions of the age. The excellence of its work is undoubted, and its superiority over Stamp Mills will soon cause a revolution in its favour for Quartz Crushing. Its first cost, and cost for freight and transit is much less than for stamps, it absorbs about half the power for the same output, and is continually crushing. It can be fixed and started in 12 hours, requiring for foundations only two pieces of timber 12 in. by 12 in. by 14 feet long, is more reliable than stamps, and has perfect delivery. It is used to its greatest advantage on gold quartz, for, because of its excellent amalgamating properties, it catches about 75 per cent. of the gold put into it.

Full Particulars on Application to

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## OUR PARIS LETTER.

**Fluctuations in Metals.—Gold Mining.—Silver Mining in Spain.—The Mozambique Company.—Some New Metals.**

THE fluctuations which have taken place during the past week in the metal markets have caused a certain amount of surprise, as the position seemed in no way to justify an advance in quotations. Encouraged by the speculation which was indulged in upon the foreign Exchanges, many buyers laid in heavy supplies of copper, and the prices of tin at the same time underwent a perceptible hardening. This upward movement, however, suddenly collapsed when it became evident that the temporary briskness in London was due to speculative influences. But though the recovery was only short-lived it yet afforded sufficient evidence of a vitality in copper, which will doubtless permit of that metal responding freely to any general upward course of the market. Consumers of copper have for so long a time maintained a cautious attitude that stocks are exceedingly small, and they will hasten to lay in supplies directly there is any tendency towards an advance in prices. This has naturally relieved the market in a great measure of the feeling of distrust which has hitherto done so much to check any progress of the metal. The outlook would, therefore, be to a certain extent satisfactory if it were not for the conviction that the situation in America is hardly favourable to the maintenance of copper prices. Another matter that acts as a drawback to copper is the weaker position of the Société des Métaux in consequence of the judgment lately given in the Court of Appeal rendering the directors liable for the losses incurred during their term of office from the 10th March, 1888. It is probable that this judgment may seriously affect the Société des Métaux, of which one of the directors is M. Secrétan, the author of the great copper "ring."

Gold mining scrip is in excellent request, and values have in many cases advanced. Preference continues to be given to Robinson and other English scrip, to buy which dealers have always more commissions than they are able to fulfil. The Champ d'Or Company is also in a much better position than it has ever been before. The loans made with a view of putting this company's affairs in order have nearly all been paid back, and it is reported that the concern has just acquired the Ventonia Mine in the neighbourhood. But apart from the South African mines there is very little doing. The enterprise that is being carried out in Colorado and California is practically at a standstill owing principally to the very high cost of management. The Société des Mines de Lexington is unable this year to declare any dividend, and expenses are being cut down all round. The present moment is certainly not a favourable one for floating companies other than those intended to work auriferous deposits in South Africa.

Mining in Spain is hardly carried on so actively as would seem to be justified by the great richness of that country's metalliferous deposits. Nevertheless, a little more enterprise is being shown in the development of new silver mines, and a company has just been formed, with a capital of 4,500,000 pesetas, under the title of La Plata Roja, to work some mines in the province of Gandalajara. These mines are in the neighbourhood of the very prolific property owned by the Nueva Santa Cécilia Company. In the course of the preliminary works lately carried out a vein of silver was cut through at a depth of 100 metres, and the hope seems justified that the working of these mines will prove very remunerative.

The position of affairs in Mozambique does not permit of a very sanguine view being taken of the future of that territory. Ever since the Mozambique Company was formed there have been continual dissensions between the English and Continental directors, and the Paris board has never ceased to do everything in its power to get rid of the English control. Long before the Paris authorities openly assumed their present attitude we stated in these columns that they were prepared to carry on a vigorous campaign against English influence in Mozambique, and in this they have been warmly supported by the Portuguese. The French imagined that in Mozambique they had a territory which they could monopolise for their own purposes, and use as a check against the development of English influence throughout South Africa. It was, therefore, somewhat galling to their sense of patriotism to find that the English insisted upon having a voice in the control of the Mozambique Company, and the way in which they have protested against the irregularities of the French management very soon gave rise to open hostilities. It is solely due to the wisdom of the English directors that the company has not fallen into a state of inertia, and had they been supported at Paris and Lisbon, instead of being hampered in every possible way, it is more than likely that the Mozambique Company would now be in a very flourishing position. It is certain that if the Paris Board succeeds in its endeavour to check the control of the English, it will do a vast deal of harm to the welfare of the East Coast. Judging from the attitude of the English directors however, it is likely that, in the event of a rupture in the international management, they are not the interests of this country that will suffer.

The question of alloys continues to occupy the attention of French metallurgists, who are convinced that a great many valuable additions to our metals can be made by pursuing this research. One metallurgist in Paris has just discovered an alloy by which he can produce a metal that possesses all the qualities of copper, and it is not in any way subjected, like that metal, to changes of colour. It has the same weight and ductility, and is produced, it is claimed, at a smaller cost. In colour it resembles gold, and is entirely unaffected by the air. This metal has only been discovered within the past few days, and its constituents cannot be made known until the patents have been taken out. Another metal has also been produced by M. Henri Moissan, who, by the aid of his electric furnace, has succeeded in showing for the first time some perfectly pure specimens of chromium. The metal in its pure state can be worked and polished, and has a colour whiter than iron. Perfectly pure chromium is unaffected by the majority of acids, and the colour is likewise unchanged by atmospheric influences. M. Moissan has also made alloys with chromium and aluminium, and chromium and copper, which show at the same time a great resistance and malleability.

# ROYAL SOCIETY OF SOUTH AUSTRALIA.

(From the *Adelaide Observer*.)

THE ordinary meeting of the Royal Society of South Australia was held on Tuesday, June 5th. The Rev. T. BLACKBURN (Vice-President) occupied the chair. Mr. Adcock exhibited some specimens of fossils from Tickera Bay. Mr. OTTO TEPPER made some preliminary remarks on a new primary rock formation of south of Adelaide, in the course of which he described his discovery at the lower gorge of the Sturt of a very interesting development of the strata forming our pre-Cambrian rocks, which formed the bulk of the range from the seashore eastward.

### Sedimentary Rocks in the MacDonnell and James Ranges.

Mr. C. CHEWINGS, Ph.D., read a paper on "Sedimentary Rocks in the MacDonnell and James Ranges." In referring to statements in page 7 of a report on the MacDonnell Ranges by the Government Geologists, entitled "Further Geological Examination of Leigh's Creek and Hergott Districts, &c., 1892," with an "Ideal Section," Dr. Chewings stated that the correct reading of the stratigraphy of the rocks in the MacDonnell and James Ranges to the south was very important to geologists, and instead of only two series of palæozoic rocks, as Mr. Brown interpreted, having large development there, viz., Cambrian and lower Silurian, there were three. Typical areas of development of the three were the following:—1. Cambrian or pre-Cambrian. The wide valley in which Glen Helen Station stands, situated in the MacDonnell Range. These could be conveniently known as the Glen Helen series. 2. Lower Silurian—Mareeno Bluff, situated in the western part of the South MacDonnell, was a good typical area, and this fossiliferous series of rocks could be designated the Mareeno Bluff series. 3. Devonian (?).—The most typical development was on the Walker Creek, in the James Ranges, and west of Tempe Downs Station. This series might conveniently be known as the Walker's Creek series. The Glen Helen series lay uncomformably on the foundation rocks of the MacDonnell. The Mareeno Bluff series lay unconformably on the Glen Helen series, and the Walker's Creek series lay unconformably on the Mareeno Bluff series. It was necessary to keep the three series of rocks very separate. Mr. Brown had mixed up one and two, and again had not discriminated between two and three. In the first case he disagreed with Mr. Brown in classing all the South MacDonnell rocks that extend from the Finke Gorge to the Missionaries' Plain as Cambrian. He (Dr. C.) had discovered silurian fossils and the most typical section of the Silurian formation in this lot of rocks at Mareeno Bluff. He also considered it most probable that the Walker's Creek series were represented there as well. In the second place Mr. Brown was in error in supposing that the fossiliferous Mareeno Bluff series (lower Silurian) was one and the same formation, and included the rocks occurring at the Lutheran Mission Station, and in which no fossils, to his knowledge, had ever been discovered. These latter belonged to the Walker's Creek series, while George Gill's and Levi's Ranges were principally composed of the Mareeno Bluff series, and in both ranges fossils of Silurian age were to be found. He supposed Mr. Brown had been led into error by the litholigical similarity and characteristic weathering common to both the series.

### A Classification of the Igneous Rocks.

Dr. CHEWINGS next read a paper entitled "A Classification of the Igneous Rocks," in which he stated that petrology was a new science, but the Germans had done much in it, and good work had been accomplished in France, England, the United States, Canada, and also in Australia. Its greatest practical use lay in what was known as the "law of association," which meant that certain minerals and metals had a fondness for associating with certain rocks, while some were only known to occur with rocks of a very distinctive character. Such rocks should be used as indicators, and search made in their neighbourhood. The laws that have been observed in Europe might or might not hold good in Australia, and it was all important that the eruptive rocks in the colony should be examined microscopically, because other determinations were so often upset when a rock was subjected to the microscope. One of the most difficult tasks a petrologist could be set to do was to draw up a good classification. The science was involved in its nomenclature. The object of the paper was to supply a systematically arranged working table, rather than a misty detailed account of every important rock that was known to science. A volcano was not merely composed of that part so often seen in photographs and drawings, viz., a cone with steam or molten rock issuing from its mouth, or if extinct the cone alone. It was necessary to take into account the contraction of the earth's crust by which mountain chains were raised aloft, and weak places sprung in the solid rocks. It was necessary to consider the great areas of sunken land. When such earth movements were in progress, the highly heated matter from great depths found its way up through the weakest places in the firm crust of the earth. The greater part of that never reached the surface, but cooled and crystallised very slowly under great pressure deep down under the surface rocks. Other portions were thrust into narrow cracks and throats of volcanoes, and between the bedding planes of rocks, while some was poured out on the surface. It was the work of the petrologist to decipher all these, and make his deductions, either from the erupted rock itself, or its effects upon the rocks with which it was in contact. Those that cooled deep down in the earth were only made visible by the removal of the rocks above. This had been done by erosion. It was in the neighbourhood of these so-called "abyssal rocks" where we must look for minerals. Australia was a country rich in minerals; it held such vast stores of mineral wealth that other countries envied us. They possibly had equally rich mineral areas, but being covered by overlying rocks they were not accessible. The rest of the paper was of a technical character.

At the close of his papers Mr. Chewings was heartily thanked for his valuable contribution to scientific knowledge.

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It is more than likely, says the *North Queensland Register*, the Day Dawn Block and Wyndham will shortly be a big producer, for a very large and well mineralised reef is being followed in Mills' United right to the boundary of the Block.

# A NEW METHOD OF SMELTING IRON PYRITES, &c.

## ISSUE OF A PAMPHLET BY MESSRS. FRASER AND CHALMERS.

(*Concluded from page 759.*)

### Ores and Materials Adapted to Pyritic Smelting.

FROM the foregoing, it is evident that the minerals which consist wholly or in part of iron sulphide, such as pyrite, are really to a large extent combustibles. Pyrite, more generally called pyrites, and sometimes "mundic," is a generic term applied by the average miner to a class of common heavy minerals which show a bright metallic lustre, are usually of a yellowish colour, and often contain or are associated with metals of economic value. Among such minerals are marcasite, pyrrhotite, chalcopyrite, and arsenopyrite, all of which are largely composed of iron and sulphur. When such ores in passing down the shafts of a furnace reach a temperature at which the iron and sulphur can no longer exist in the combined state, in other words, at which these elements are dissociated, we get them in the finest possible state of division (*status nascendi*), and from what we have already learned predisposed to unite with the oxygen of the blast. It, therefore, becomes clear how it is that the hard, bright pyrite, which in some countries is deemed so difficult to treat that its appearance in the mines occasionally heralds their abandonment, may be transformed from an undesirable, inert material, into an exceedingly valuable metallurgical fuel, which may be used in beneficiating not only itself but other minerals.

The time honoured practice of destroying the fuel character of a sulphide, natural or artificial, by laboriously roasting it at a heavy outlay, and then subjecting the roasted product to the expensive process of smelting fusion, is absurd, now that it is shown that this same sulphide can be made to smelt itself together with one-quarter to one-third its weight of other ore, producing a material equally valuable with that resulting from the complicated system of processes first mentioned, and at only a fraction of the expense.

Miners all over the world have been very improvidently wasting their resources by transporting coke to remote mining regions when often enormous masses of a fuel superior for their purposes were near at hand.

Iron pyrites, copper pyrites, or arsenical pyrites, carrying a few ounces of gold and silver per ton, or pyritiferous ores of a smaller value in precious metals (provided copper, dry silver or gold ores are available), or pyrrhotites which carry a few units of nickel, may be treated in this manner at a very low figure, and the valuable contents of these ores concentrated into a small amount of matte. There are in the United States alone vast amounts of such ores lying unproductive because they cannot be handled profitably by any of the old methods of reduction. Often there is not enough of value in them to permit the use of coke or other expensive fuels in their treatment, but if they themselves be regarded in the light of actual fuels, which they are, a number of large and profitable works could be started in this country at as many different points.

Viewed as a metallurgical fuel, therefore, the value of the enormous deposits of natural sulphides, in districts where carbonaceous fuel is scarce, is very great. It is by no means necessary, as we have seen, that the materials treated in this manner should be wholly pyrite, for many of the arsenical or antimonial sulphur compounds with the heavy metals, mineralised or artificial, are equally applicable. In every case, however, such slag forming elements will be required as are usually essential in smelting operations. The component elements of matte and speise, or of mispickel may be split up in the furnace and utilised under the proper conditions of charge, but as might be expected, some alterations in the form of furnace and general plan of apparatus employed are necessary to meet the requirements of local conditions in each case.

All ores of the precious metals may be divided into two classes with reference to the facility with which they admit of treatment, namely, those easy of reduction (docile), or those hard to treat by methods heretofore existing (refractory or rebellious). The first class includes the surface (oxidised) ores, which are found in the top levels of the mines. Generally these ores disappear as depth is attained, their place being taken by others which require a more complicated treatment. It is not an infrequent occurrence that mining enterprises starting with the docile surface ores are wrecked upon meeting with the second or refractory class, because those in charge do not know how to treat them. But these latter ores are only refractory in the sense that the generally known methods for beneficiating them are not well adapted to their peculiarities. With the proper appliances and experience, such ores are in no wise difficult to treat.

Even blende (Black Jack) and galena may also be burned in the same manner that iron pyrites is, and with blende almost as high a heat is theoretically attainable, but a modification of the methods employed is necessary, and where very large percentage of zinc is carried, nothing has been attempted to date.

However, ores carrying as high as 13 per cent. zinc have been smelted by this method without any difficulty whatever, and no trouble is anticipated in smelting ores carrying higher percentages.

Any dry ores—that is to say, ores carrying gold or silver, with no lead or copper to speak of—may be smelted by the pyritic process, where pyritous ores are obtainable for fuel and fluxing.

This system of smelting is particularly well adapted to treating low grade copper pyrites, which may be in this way concentrated into high grade matte in one operation, thereby avoiding the expensive and tedious heap-roasting methods with the attendant fume nuisance and other drawbacks.

### Style of Furnace Used.

The style of furnace used in carrying out this method of ore reduction closely resembles, in its general features, the blast furnaces employed in ordinary copper and lead smelting operations. It has the general dimensions of these latter, as far as height and area of hearth are concerned, but differs from them in some essential particulars which fit it for the use of the sulphides as fuel instead of the ordinary carbonaceous material. As sulphide ores are prone to fuse together and form a compact mass in the upper part of the furnace, precautions must be adopted to prevent such occurrences, as well as to avoid blowing the finer particles of the ore out of the furnace where the latter has not a closed top.

The fact that little or no carbonaceous fuel is mixed with the ore charge, which in ordinary smelting serves to keep the same apart and in a loose condition, necessitates alterations corresponding to the difference in the nature of the fuel. The difficulties encountered in handling large quantities of fiery matte must also be guarded against, and a number of other points must be provided for. In fact, the pyritic smelting furnace, as it stands to-day, embodies a number of novel features which are the outcome of an extended experience in treating large quantities of pyritous ores by this method. A marked peculiarity of these pyritic furnaces is that although the cubic contents are no greater than those of the usual type of copper furnaces, still their ore smelting capacity is much larger, often exceeding the latter by 50 per cent. This is to some extent due to the fact that inasmuch as the fuel and ore are united in one and the same material, the sulphide, no space is taken up in the furnace by bulky coke or charcoal, and no time is lost in the burning of the latter. As much as 200 tons of ore can be smelted in one of these furnaces in 24 hours, provided the proper conditions of charge, &c., are supplied, and yet the entire plant does not cover an area greater than that occupied by the ordinary lead or copper smelter of 50 tons daily capacity.

### Method of Operating.

In almost all smelting operations it is customary to oxidise the sulphureted ore preparatory to their further metallurgical treatment. This is done in order to bring them into a condition where their metallic contents may be reduced by carbon. When the ore happens to be iron or copper pyrites, the common practice is to first roast off their sulphur contents, and then smelt the residual oxidised material with the assistance of coke and charcoal in the blast furnace. Such ores, when sufficiently rich in valuable constituents, are transported to the large central smelting works, where they are worked up into lead and copper products, and after extracting their contents in gold and silver, they become a valuable adjunct to the operations carried on in such establishments.

In this method of treatment, two operations are necessary.

1. The sulphide ores are first roasted, and for blast furnace work are afterwards fused or agglomerated, using cord-wood or coal as fuel, the fusion or agglomeration being conducted on the final or fusion hearth of the roasting furnace itself, and being needed to obtain a coarse or lumpy material for the subsequent treatment.

2. The roasted and fused ores are then smelted, using for fuel coke or charcoal in the blast furnace, and coals in reverberatory furnaces, which latter, however, are not used in the western part of America, except in copper smelting. The blast furnaces used from 14 per cent. to 20 per cent. of best coke or charcoal, say 1-5th to 1-7th, the weight of charges treated in the furnaces.

The cost of these carbonaceous fuels is very often so great as to render exploitation unremunerative, and many valuable ore deposits are on this account allowed to lie unproductive.

But when sulphides are substituted in the charge in the proper proportions, replacing coke or charcoal as the case may be, and also supplying in themselves, to a great extent, the necessary fluxes, then the precious and useful metals are by one operation concentrated in a matte, approximately of the same character as that produced by our Western copper smelters, which is afterwards shipped to English or American works to be refined, or sometimes is treated on the spot by whichever of the various methods is most applicable.

The raw ore is fed into the upper part of a pyritic furnace just as it is mined, in pieces as large as can be conveniently handled, and the molten product of the operation are drawn off from the lower part of the furnace either continuously or at regular intervals according to circumstances. Where a bell and hopper are dispensed with, the pieces of ore fed in can be of any size that a man is able to lift. In every smelting operation the composition of the ore charge is of the greatest importance, and pyritic smelting is no exception to this rule. Unless the proper slag-building ingredients are fed into the furnace according to certain well established rules, which are the result of experience obtained in treating many varieties of pyritic ore, the results will be disappointing or even disastrous. On the other hand, if the principles which underlie the use of a sulphide fuel are strictly adhered to, the operation of a pyritic furnace is as simple as any other style of smelting. The molten products resulting from the combustion of the sulphides are matte and slag, which are allowed to separate according to their specific gravity, and are then drawn off separately.

In order to successively use sulphides as fuel in a blast furnace, the following conditions are essential: (*a*) A smelting temperature before the tuyeres. (*b*) An external source of heat supply. (*c*) Ore in lump form, or bricked. When these conditions are filled, pyrite may be substituted for coke in a furnace charge, and the smelting process continue and with excellent results.

### Percentages of Metals Saved.

The different metals, which it is claimed to collect in matte-smelting—nickel, silver, copper, gold, lead, &c.—differ in their chemical affinity for sulphur, and this precludes equality in the results for all the metals. Nickel, silver, and copper are easily and thoroughly assembled, whereas gold is not so readily collected in a matte, unless 2 or 3 per cent. of copper or a larger amount of lead is present. A very little copper in the charge causes a very perfect collection of the precious metals in the matte, but silver does not require the copper. It is safe to say that in the case of the first four metals named, an extraction above 95 per cent. can be counted upon with absolute certainty, and usually this has been exceeded, except in cases where no provision was made for preventing the fine ore from being blown out of the stack. With lead ores the case is different, for the principles upon which this system of smelting is based are not calculated to save a high percentage of such a volatile metal as lead. The following results taken from a very carefully conducted run, upon which a sale of considerable magnitude was made, show what can reasonably be expected in pyritic smelting, even when the conditions are none too favourable. During a part of this run there was no coke or charcoal whatever introduced with the charge into the furnace, the pyrites alone furnishing the fuel for the operation.

| Silver Statement. | Credit. | Debit. |
|---|---|---|
| Silver in 2043·57 tons of ore | | 36,305·87 oz. |
| ,, ,, 152 ,, ,, slag used, | | 698·87 oz. |
| Silver in 215·26 tons matte, | 32,986·80 oz. | |
| ,, ,, furnace bottoms, &c., | 2,482·85 oz. | |
| To balance (Loss 4·15 per cent.) | 1,535·09 oz. | |
| | 37,004·74 oz. | 37,004·74 oz. |

| Gold Statement. | Credit. | Debit. |
|---|---|---|
| Gold in 2043·57 tons of ore, | | 56·8216 oz. |
| ,, 215·26 ,, ,, matte, | 51·1648 oz. | |
| ,, furnace bottoms, &c., | 3·7098 oz. | |
| To balance (Loss 3·43 per cent.) | 1·9470 oz. | |
| | 56·8216 oz. | 56·8216 oz. |

| Copper Statement. | Credit. | Debit. |
|---|---|---|
| Copper in 2043·57 tons of ore, | | 41,553·73 lbs. |
| ,, 215·26 ,, ,, matte, | 39,655·57 lbs. | |
| ,, furnace bottoms, &c., | 3,248·47 lbs. | |
| | 42,904·04 lbs. | |
| To balance deduct gain which is, | 1,350·31 lbs. | |
| | 41,553·73 lbs. | 41,553·73 lbs. |

In another run of 25 days on other ores, and in a different locality, when 897 tons of ore were smelted, and the weights were very carefully checked up, there was a loss in silver of 4·1 per cent. and a gain in gold of 3·8 per cent. This excess of gold and also that of copper in the former instance was due to the furnace saving from the low grade ores and fluxes minute quantities of metal which the assayer had failed to find in them.

As a rule, the slag resulting from pyritic operations will continue only from ½ to 1½ ounce silver per ton, with merely a trace of gold, and can be thrown away. These results may be depended upon when the ore charge is made up with due regard to chemical principles.

In some cases, where fuel for obtaining power is scarce or expensive, the slag produced by the furnaces may be utilised for generating steam. It is claimed that at one important metallurgical works 80 h.p. are obtained from each furnace in this way.

### Concentration of Ore into Matte.

Matte is the technical name for the artificial sulphide, or combination of sulphides produced in smelting operations. Gold, silver, and other metals may be collected from their ores into mattes of greater or less richness, varying from 5 to 25 tons of ore into one of matte, the degree of concentration effected being merely a matter of expediency. Matte smelting has long been practiced in copper metallurgy.

Where copper ores are not available an iron matte answers the purpose in some cases. The use of an iron matte in smelting silver ores dates back for centuries.

In matte smelting more of the so-called "dry ores" (silicious) can be used in the furnace than is admissible in lead smelting This is a desideratum, because in many sections such ores carry with them a large remuneration. Long experience in the use of matte as a collecting agent from the precious metals has demonstrated that it can be made practically as efficient as lead in silver-lead smelting operations.

By subsequent smeltings mattes may be concentrated up to a high degree, as high or higher than the average value of so-called lead bullion, and may be shipped to market in this concentrated form.

When matte contains copper, either from smelting copper pyrites or introducing other copper ores in the charge, it goes into the market as copper matte, which is an article of commerce.

In case matte is produced in some distant section difficult of access, the precious metals contained therein may be extracted by any one of several well-known processes, and shipped in the form of bullion. The selection of one or the other of these methods of treatment depends on local conditions, percentage of copper in the ore, richness of matte, &c., and it might be added that the degree of concentration effected—that is, the number of tons of ore which are condensed into one of matte, depends largely upon the same factors. Of course, when the ore carries 10 per cent. of copper, fewer tons can be concentrated into a ton of say 50 per cent. matte, than where an ore carrying 1 per cent. copper is concerned. The same rule applies relatively to silver, gold and nickel ores. In one run recently made when 2044 tons of ore were smelted, the matte produced amounted to 215 tons, 9½ tons of ore being concentrated into 1 ton of matte.

### Cost of Smelting.

It is evident that a plant handling 200 tons of material daily will have its general expenses distributed over a greater number of tons than one handling only 10 tons in the same time, and, consequently, will work much more cheaply per ton material. As the cost of smelting ores is largely made up of what may be styled fixed charges (administration, power, interest, sinking funds, &c.), which are constant whether 50 or 100 tons are treated, and as the difference in amount of labour employed around a properly constructed furnace of the larger type is comparatively little in excess of that required for the smaller ones, it stands to reason that the cost of handling ore in the first case will be very much less than in the second.

A comparison of the expenses incurred in smelting ores by any of the old methods with those of the pyritic process results greatly in favour of the last named.

1. In the item of labour the advantage of the pyritic method lies in the fact that in a given time, more ore can be smelted in a furnace by this system than it is possible to pass through the same furnace with carbonaceous fuel, therefore, the cost of labour per ton of ore treated is very much less in the first case.

2. Of course the items of coke and charcoal, which are a very considerable part of the present cost of smelting ores, almost and sometimes altogether disappear in the new system. When the ore is fine, or liable to decrepitate badly, an addition of from 2 to 5 per cent. of coal, or of some material that will prevent the charge from packing and thereby hindering the penetration of the blast, is advisable and often necessary; but with "bricked ore" or firm coarse ore, the furnace may be run without any such addition. This is a great point gained over the old methods, as a visit to any of our leading metallurgical works, and inspection of their enormous piles of expensive fuels will prove.

3. The item of fluxes, such as oxidised iron ore, &c., which a lead or copper smelter is forced to use to get a slag of the right consistency for economic working of its furnaces is unnecessary in pyritic smelting, because what iron is needed is supplied by the pyritiferous ore itself. (Limestone is not necessary, but generally is desirable for use with fine pyritic ores.) Thus another very heavy item of expense is avoided.

4. In pyritic smelting, the expense of roasting the ores (driving off the sulphur), which is practiced in all well conducted, ordinary smelting works, and which often exceeds half the cost of smelting, disappears entirely, for this very sulphur is used as a prime factor in generating the heat necessary to carry on the smelting, and in most cases sulphide ores may be smelted for less than it costs to roast them by hand labour under the old system.

5. Another advantage is that as the heat employed in pyritic smelting is greater than in the lead furnaces, therefore a more silicious slag can be made, or in other words, a more profitable smelting charge operated upon, whereas now ores carrying much silica are heavily taxed by smelters on account of the increased cost of their treatment by the usual methods of smelting.

6. The silver-lead smelters cannot get along without lead ores, and owing to the scarcity of such ores they are often compelled to pay a higher price for the lead contained therein than they subsequently receive from the Eastern refineries for the same metal in the state of bullion. Lead is not necessary in pyritic smelting, and so another great expense is avoided.

7. Furthermore, the fact that the matte produced may be easily and cheaply refined at the works, in cases where the distance from market precludes shipping it away, gives this system a great advantage over works producing lead bullion or copper products.

In the case of the 2·044 tons of ore already referred to, the actual cost of converting said ore into matte was $3·92 per ton. In another case it was $5·72; in another about $2. In all these instances the price of labour was excessive, and supplies and materials were scarce and expensive. In a general way it may be said that a plant handling continuously 200 tons of pyritic ore daily, with the price of fuel equivalent to $5 per ton for coal, and with labour at an average of $3 per man per shift of 12 hours, ought to produce matte for less than $3 per ton of ore smelted, and under favourable conditions this should be reduced one-half.

### Cost of Plant.

The plant used does not differ materially from that employed in copper and lead smelting, and, in fact, such plants can be altered at moderate expense so as to be adapted to pyritic smelting, at least as far as their blast furnace department is concerned. The roasting and roast fusion departments must be discarded as of no further use. Doing away with the enormous roasting plants which smelters have added to their establishments of late years is not the least of the advantages of this system of smelting.

At any point reached by rail, an entirely new 200 ton pyritic smelter will cost, erected and ready for operation, from $50,000 to $100,000, according to freight rates and prices of labour and materials at the point where the works are to be constructed.

Established standard types of machinery and other appliances are used, slightly altered to meet the changed conditions, but it is on these slight alterations in the smelting apparatus, coupled with a new application of long established principles, that the success of this system of ore reduction depends.

A plant designed to handle only 20 to 30 tons of ore per diem is not a very expensive affair, but to form a reliable estimate of the cost of a plant of any size, all the local conditions under which it is to operate must be given, and especially must those governing or influencing the supply of power, of fuel, and of ores, be stated in detail. For instance, if water power should be available, it might be a controlling factor in an estimate, and whatever fuel is the cheapest for heating, whether coal, lignite, coal slack, cord wood, peat, oil, gas, brush, or sawdust, each requires a different style of apparatus to produce the best results. Also special modifications of furnace are needed for some varieties of ores. In fact, comprehensive and accurate information must be had in every case before designing and estimating on a large pyritic smelting plant, else only a rough generalisation can be arrived at.

Other facts and statements in corroboration of the foregoing, from those using this system of smelting pyritic ores, can be had at our office by any owners of such ores desiring to make further investigation and comparison.

NEWS BY THE TAPE has often been utilised by a bold speculator for the speedy accumulation of a vast fortune. Knowledge is power in every avenue of life when properly wielded. The proprietor of Holloway's Pills and Ointment is fully alive to this fact, and knowing their value as a cure for all diseases, he has made their merits known in all parts of the world. Commercial men who, to keep pace with the times, have always to work at high pressure, should never be without a supply of these valuable medicines. They purify the blood, strengthen the stomach, quicken the circulation, and invigorate the system. For nervous or neuralgic headache, no remedy has been found to match them in excellence.

# THE BAUXITES.*

## A STUDY OF A NEW MINERALOGICAL FAMILY.

By FRANCIS LAUR, Engineer of Mines, Deputy of the Seine
Paris, France.

(*Concluded from page 763.*)

### II.—The Family of the Bauxites.

ALTHOUGH the industrial applications of this mineral have been thus developed in a few years, an exact account of its nature is still wanting. What are the bauxites?

They occur in the earth's crust in the form of veins, beds or amorphous masses, not crystallised, and possessing no constant organoleptic characters. Hardness, colour, texture, density—everything—changes often in the same deposit. Hence the difficulty of establishing general characters by which these minerals can be recognised. Impressed with this difficulty of fixing, mineralogically, the general characters of the new family of bauxites, I was obliged to seek to avoid it by effecting, with the aid of thousands of analyses, a sort of molecular classification, in the absence of constant external peculiarities. The result of this endeavour will now be stated.

When these minerals are studied, not in isolated specimens but in mass, it is quickly noticed that there is in their composition, so to speak, namely, the general proportion of anhydrous alumina, $Al_2O_3$, the average of which is about 66 to 69 per cent. This figure is given by the analyses of thousands of shipments. Representing this constant by A, we find three variable elements, *e*, besides, namely, water, silica, and ferric oxide; and it is a remarkable fact that the sum of the weights of these is constant also at about 27 per cent. We will represent it by Pe.

Finally, the various accessory substances (titanium, vanadium, &c.) which occur even in the purest bauxites, present a constant total of about 3 to 4 per cent. These we represent by C.

Thus, the centesimal formula of the bauxites:

68 to 70 $Al_2O_3$ + 27 ($SiO_2$, $Fe_2O_3$, $H_2O$) + 4 (sundry accessories) may be written in general form as A + Pe + C.

But the three variable elements of Pe have the singular property of replacing one another, in whole or in part, separately increasing, diminishing, or totally disappearing, without change of the total of 27 per cent., and without altering the fixed mineral species, which is, according to our view, the bi-hydrate of alumina, forming the base of the mineral. These varying substitutions give rise to the different types of which we shall speak.

The Bauxite of Baux.—Before our discovery of the white bauxites of Villeveyrac (Hérault) there was only known the impure, more or less ferruginous and siliceous bauxite, reported from the village of Baux, by Berthier. Subsequently, the bauxites of Neustadt, Leoben (Austria), Ireland, &c., received mention. They constituted a vaguely characterised variety, containing the constant of alumina, A, with the elements of iron, silica, and water, often in equal thirds, constituting a variegated white and red (sometimes pink) bauxite of indefinite composition, but for which, in strictness, the formula

$$A + Pe\,[\tfrac{1}{3}H_2O, \tfrac{1}{3}SiO_2, \tfrac{1}{3}Fe_2O_3] + C.$$

could, perhaps, be employed. However, we have, in fact, to deal at Baux, not with a definite type of bauxite, but rather with a mixture of the types hereafter to be described.

Pale Bauxite.—As has been narrated above, Mr. Augé and the writer brought to light at Villeveyrac, and introduced into industrial use, a variety which we have denominated, by reason of its peculiar appearance, pale bauxite. Its composition was practically novel. The ferric oxide has been almost entirely replaced with silica, giving a mineral with something of the aspect of a soft chalk, of creamy colour, staining the fingers, often pisolithic, and having a composition which could be expressed by the formula:

$$A + Pe\,[\tfrac{1}{2}H_2O, \tfrac{1}{2}SiO_2] + C.$$

It will be seen that in this bauxite one part of water has been replaced with silica, while the ferric oxide has been relegated to the category C of accessory constituents.

It is upon this siliceous pale bauxite, which is attacked by acids with peculiar ease that we inaugurated in France (at L'Oseraie, near Avignon), in 1875, the manufacture of neutral sulphate of alumina.

Red Bauxite.—Our investigations, under the circumstances above stated, and particularly the researches of Mr. Augé, led at last about 1880 to the discovery in the departments of the south of France (Bouches du Rhône, Var, Alpes Maritimes, &c.), at Thoronet, Cabasse, Luc, &c., of a third variety of bauxite, previously quite unknown. This type is still more characteristic than the preceding one.

Instead of being white, as at Villeveyrac, or striped with red, and pisolithic, as at Baux, it presents the appearance of a fine, homogeneous paste, breaking with splintery conchoidal fracture, and as dark red as bloodstone; and it is so constant in its composition that we have been able to ship, during more than 12 years past, about 150,000 tons of it, upon a uniform guaranty of a minimum of alumina, which has always been fulfilled.

Here the silica has been almost wholly replaced with ferric oxide, and we have in this red type, so to speak, the inverse of the pale bauxite of Villeveyrac. It may be represented by the formula:

$$A + Pe\,[\tfrac{1}{2}H_2O, \tfrac{1}{2}Fe_2O_3] + C.$$

Here it will be seen that one part of water has been replaced with ferric oxide. The silica in the red variety, like the ferric oxide in the white variety, has been reduced to the position of an accessory constituent, under C, amounting, with vanadium, titanium, &c., to 2 to 4 per cent.

This bauxite, unsuited by reason of its contents in iron for direct treatment with acids, was promptly demanded for manufacture in the dry way—namely, for the production of pure alumina by the sodium carbonate process of Salyudres; and it is the exploitation of this third type which has made during the past 10 years such astonishing progress.

Hyaline Bauxite.—Finally, there has been discovered in Alabama and Georgia, and in the Yellowstone National Park, a fourth variety of bauxite, in which silica and ferric oxide are not found, and two equivalents of water determine the type. It is this form which occurs as an easily discernible admixture in the siliceous bauxite of the Villeveyrac variety. As may there be observed, the mineralogical type remains the same, only the particles of bauxite have a more glaucous, translucent, slightly horny appearance, and are soft, easily scratched with the finger nail. This is the bi-hydrate of alumina, and the formula is, therefore,

$$A + Pe\,[2H_2O] + C.$$

It is nothing else than amorphous hydrargyllite, nearly pure, with 3 to 4 per cent. of accessory constituents and 27 per cent. of water.

This variety has not yet been thoroughly tested by continuous exploitation and repeated analyses. It is yet in the beginning of its development, and what has been produced so far is a pale bauxite of the Villeveyrac type, but containing nodules of hydrargyllite in considerable abundance.

It will thus be seen that the four types of bauxite hitherto known (and which may sometimes occur more or less intermingled in the same deposit) are:—

1. Mixed bauxite of Baux, A + Pe ... ... $\left\{\begin{matrix}\frac{1}{3}H_2O\\ \frac{1}{3}SiO_2\\ \frac{1}{3}Fe_2O_3\end{matrix}\right\}$ + C.
2. Pale bauxite of Villeveyrac, A + Pe ... $\left\{\begin{matrix}\frac{1}{2}H_2O\\ \frac{1}{2}SiO_2\end{matrix}\right\}$ + C.
3. Red bauxite of the Var, A + Pe ... ... $\left\{\begin{matrix}\frac{1}{2}H_2O\\ \frac{1}{2}Fe_2O_3\end{matrix}\right\}$ + C.
4. Pure bauxite of Alabama, A + Pe ... ... ... $[2H_2O]$ + C.

And it may be affirmed that the basis of the bauxite is the natural bi-hydrate of alumina or hydrargyllite, with about 27 per cent. of water, which has not yet been, but may be some day, developed in workable deposits.

This natural bi-hydrate is the true mineralogical initial geyser-type, combining in definite proportions with two principal substances, ferric oxide and silica, by the substitution of these substances for its water of combination, in whole or in part.

This hydrated alumina has very manifold and energetic affinities, by virtue of the double part which it can play, as base and as acid.

In its combination with silica, to form the pale bauxites, it evidently takes the part of a base, uniting with silicic acid to produce a certain amount of basic silicate of alumina, if we may so term it, or, better, of white ultramarine. The silica is substituted for half the water of combination.

The probability of this theory is shown by the fact that we find bauxites containing about 27 per cent. of silica, and having the aspect of hard, opaque, polished lithographic limestone. In these silica has totally replaced the water of combination, causing all the properties of hydrargyllite to disappear. This variety has never found commercial use; but it exists in large quantity, and may be called the siliceous type of bauxite, or natural white ultramarine.

The most curious variety is No. 3 of the above list, the inverse ferruginous variety, in which alumina plays the part of an acid towards the ferric oxide which has completely replaced silica. Evidently we have here a true ferric aluminate in which the metallic oxide has been substituted for about half the water of hydration, forming the red type of the Var by a process precisely similar to that by which the white type of Villeveyrac has originated.

Here, also, we can find what I shall call the maximal ferruginous type (*le type ferrugineux-limite*) in which all the water of hydration has been thus replaced with ferric oxide. This occurs in abundant pisolithic concretions, presenting strong analogies with those of Berry, which latter are said to be themselves, perhaps, aluminates of iron.

Thus the bauxites find their place in the geological category of known types as geyser products, between the clays proper and the ores of iron.

Eliminating the mixed type of Baux, included among the commercial bauxites before mentioned, and adding the two extreme types already referred to, we have five definite typical classes, as follows:—

1. Hydrargyllite (the pure type of bauxite) ... A + Pe$[2H_2O]$+C.

Siliceous Bauxites.

2. Pale bauxite of Villeveyrac (an intermediary type; hydrargyllite, with basic silicate of alumina ... ... ... A + Pe $\left\{\begin{matrix}\frac{1}{2}H_2O\\ \frac{1}{2}SiO_2\end{matrix}\right\}$ +C.
3. Maximal siliceous bauxite (basic sillicate of alumina ... ... ... ... ... A + Pe $[Si_2O]$+C.

Ferruginous Bauxites.

4. Red bauxite of the Var (hydrargyllite with aluminate of iron) ... ... ... A+Pe $\left\{\begin{matrix}\frac{1}{2}H_2O\\ \frac{1}{2}Fe_2O_3\end{matrix}\right\}$ +C.
5. Maximal ferruginous bauxite (aluminate of iron)... ... ... ... ... ... A + Pe $[Fe_2O_3]$ + C.

We must not forget to mention that there exists, notably at Villeveyrac, a violet manganiferous bauxite, which may give room for a new type; and there is no reason why titaniferous, vanadic, barytic, calcic, and other bauxites should not also be discovered. They certainly exist, but they have not yet attracted the attention of scientists or manufacturers. There are some in Alabama bauxites, the alumina of which is combined with organic matter.

In short, to resume our argument, the bauxites are nothing other than the inorganic lacs or lakes, more or less defined in proportions (but with a certain maximum in combination); and all substances capable of uniting with alumina hydrate may constitute, some day, mineralogically, a family of aluminous compounds in the humid way, as numerous as the aluminous family found in the dry way. We are only at the threshold of discoveries in this respect; for alumina combining in the dry way constitutes but one substance, $Al_2O_3$, whereas alumina combining in the humid way has three or four hydrates, possessing powerful and diverse chemical affinities. Hitherto, it is the bauxite family derived from the bi-hydrate which has become somewhat known; but it would be of great interest to discover the family derived from the mono-hydrate, and containing up to 85 per cent. of alumina. Bauxites from the higher hydrates, on the other hand (such as gibbsite, for example, which has three equivalents of water), will evidently present less interest, and will be lost among the ordinary clays and the various silicates, iron ores and limes already known.

If, now, we would form, by way of suggestion, some idea of the entrance of the bauxites among our sedimentary rocks, we need only consider hot springs as depositing gelatinous alumina (absolutely as they do gelatinous silica), and the different substances, ferric oxide, silica, titanic acid, &c., as forming, with this deposit, silico-aluminates, definite aluminates or inorganic lacs, such as have recently become known. In the Yellowstone National Park this hydrargyllite is still deposited to-day, the substance which is the primary basis of all the bauxites over the globe, in quantity much greater than has been suspected heretofore. According to Hayden, this mineral can be seen combining with iron, silica, and lime.

Geologically speaking, the phenomena which gave rise to the bauxites in Europe occurred with great intensity towards the end of the cretaceous epoch, and has never been repeated. As a result, these minerals have a definite geological age. They take their place between the Urgonian and the Cenomanian, where they form to-day a very useful geological horizon among the upper cretaceous terranes. But this branch of the subject should be treated in a separate paper.

Such is the conception which we have formed concerning the bauxite after 20 years spent in their exploitation. General experience will, perhaps, some day present complete confirmation of our views.

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* A paper read before the Virginia Beach Meeting of the American Institute of Mining Engineers

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THE battery at the Luipaard's Vlei Estate property has been closed down, development in the Mynpacht Mine being still continued in the north-western section. All work on the battery reef has been stopped. The shutting down of the mill is a matter of little moment; for the returns have not exceeded 250 ounces a month, and have averaged about 150 ounces.

# MEETINGS OF MINING COMPANIES.

## APPANTOO GOLD MINING COMPANY, LIMITED.

### Situation at the mine satisfactory.—The gold returns increasing.

THE half-yearly general meeting of the shareholders in the Appantoo Gold Mining Company (Limited), was held on Tuesday, at Winchester House, the chair being occupied by Mr. A. G. KITCHING, J.P.

The SECRETARY (Mr. H. D. Risbee) read the notice convening the meeting.

The CHAIRMAN said: Gentlemen, it will be within your recollection that at the meeting held in December last, a wish was expressed by several shareholders that we should have half-yearly meetings, I took upon myself then to promise you that half-yearly meetings should be held, and it is in accordance with that promise that we have invited you to meet us here this afternoon. It will be my duty to explain to you as clearly and as fully as I am able what work has been done during the past six months, up to the time of our last advices. We are fortunate in having with us to-day Mr. Harrington, who has not very long since returned from the mines, where he was the manager of your mill for some considerable period, and he will, no doubt, give you some valuable information as to your property. We also have with us Mr. Tizard, who is our clerk at Axim, and who has been home on leave, and is returning within a week or 10 days. When we last met in December, we were under a very heavy cloud. Harvey's shaft, as you will remember, had fallen in, and all work at the mine had come to a standstill. Our manager, Mr. James, was leaving the coast quite against the desires and wishes of the board. He came down to Axim, took steamer and returned home. The accident certainly appeared overwhelming, for not only was the expense of repairing the slip very great, but our operations were entirely suspended. We arranged for Captain Wyatt to go out there at once, and also for Mr. Swift, our superintendent, who was in England at the time, and whose leave had not expired, to go back instantly, with Captain Wyatt, in order that, if possible, arrangements might be made for reopening the shaft and the mine. Mr. Swift went back very willingly, and in conjunction with Captain Wyatt has done very good work there during the last six months. When Mr. James left the mine he placed in authority there as manager Mr. Thompson, our engineer, and I am very glad to have this opportunity of expressing in a public manner my high appreciation of the zeal and ability with which Mr. Thompson undertook these new duties, which he carried out to the entire satisfaction of the board. Such was the condition of our affairs when we met in December, and I am glad to say that we are in a very different position at the present moment. The last six months has been spent almost entirely in re-opening and re-timbering the mine, and instead of there being only one place from which to obtain mineral we have at the present moment from six to eight such places, and in the event of a similar accident happening again we should simply have our returns lessened for a time. Perhaps I should best explain the present condition of work in the mine if I were to take you somewhat briefly through Captain Worgent's report with the aid of the map before you. It is astonishing—by-the-way—how things go by comparison. This map seemed a very large affair when we had it in the office at Dashwood House, but now it looks quite small. You will see that in the report Captain Worgent first draws attention to the tunnel which has been driven west in Treasury Hill, and which has been called Thompson's Tunnel, situated 300 yards west of Harvey's shaft. That Thompson's tunnel has been driven west into the hill 120 feet and on the lode. The lode is 8 feet wide there, and some very good stone has been taken out. Then in the next paragraph the Captain speaks of Worgent's tunnel, which is driven in the same gully east—also on the lode. As you will notice in the next paragraph he says that he will have "80 feet of backs or stoping overhead." Then they have driven two crosscuts a little nearer to the Harvey's shaft, on the north side of this hill in a southerly direction. This work, he says, "was done by contract, with a double object in view; first, to work out any of the reef that might have been left unworked, and as we have now cut the reef in each with fully 8 feet of good stone in both, we shall be enabled later on, when the stone is worked out, to fulfil the other object, viz., filling in the stopes underneath with dirt from the surface as the stone is taken out, thereby keeping the ground secure, as timber is no good for this purpose where the hanging or footwall of reef is so soft and unsettled, liable to run at any time, and thus stop mining operations in close proximity thereto." Then he speaks in the last paragraph of Harvey's level, and this they have been opening out westward, where it had fallen in and had entirely prevented any ventilation reaching the lower part of the shaft, and so had stopped work for a considerable time. In this tunnel west of Prestea shaft they have discovered a large body of good stone fully 14 feet in thickness. This he considers to be an important development, as they will in a few weeks have the whole tunnel retimbered, and will be able to work on the mineral when Harvey's shaft is repaired, and draw it to the mill. Harvey's shaft is 89 feet down, and has been retimbered and put into a thoroughly secure position. They propose driving east and west now that the air is good right down to the bottom, and it will be a matter for consideration afterwards as to whether Cawston's shaft or Harvey's shaft is to be proceeded with at a lower depth. Cawston's shaft further east is down 166 feet, which brings it, as it commences at a higher level, to the same distance down as Harvey's shaft. You will recollect that at the last meeting I told you that in all probability it would be necessary to sink another shaft between the Harvey and Cawston shafts. That has been decided on at last as necessary to be done, and they have begun to sink the shaft about half way between the other two shafts, and at the present moment it is down about 30 or 35 feet. The intention is to make it the main shaft, in order that they may conduct all mining operations through it, and it will be strengthened in such a manner that we hope no calamity can overtake it in the future. Whilst all these developments have been going on with the reopening of these levels and the retimbering I am glad to say they have been making small returns. It is satisfactory to note that, although these returns are small, each has been larger than the preceding one. The return for January was 104 ounces, for February and March 120 ounces, for April 154 ounces; May 253 ounces, and we had a telegram about the 23rd of June saying that they think the return for June will be 270 ounces, so that they have been proceeding with the extraction of the mineral, although in a small way satisfactorily—considering that each month shows a larger return than the month preceding. That naturally brings me to finance. You will readily understand that this serious slip in Harvey's shaft quite upset our calculations as to what amount of money it would require to place the property in a thoroughly workable and profitable condition. We mentioned to you that we had hopes that a 2s. 6d. call would have been sufficient for us, and it would have been if it had not been for this slip in the Harvey's shaft. I can assure you that the board have conducted your affairs with the utmost economy, and have endeavoured in every possible way to cut our cost according to our cloth. But at the same time it would have been folly to have restricted the development in order to have saved a few hundred pounds in the monthly outlay. The sooner we can get the mine open the sooner we can get into a position to make profitable returns to the shareholders. Now, considering this very serious mishap at the mine, it is rather surprising that we have been able to go on as we have done. We have had to finance the mine for six months. Our expenses are roughly £1200 a month, so that when you have returns telegraphed every month, as we hope will be the case before long, you can readily calculate in a rough manner what profit is being made. Unfortunately, instead of calling up 2s. 6d., we have had to call up 4s. 6d., and I ask you at the close of the meeting to have a little

conversation together on this point, because it is absolutely necessary that we should find a very small amount more money in order to bring the developments which have already taken place into a profitable condition.

Mr. FERGUSSON: Do you mean more money beyond the 6d.?

The CHAIRMAN: In order not to call that 6d. up.

Mr. FERGUSSON: Not to call it up?

The CHAIRMAN: I want to explain that to you when the reporters have said "Amen," because we may almost consider that we are in committee then, and we may talk a little more freely than we wish to talk in public. There are one or two satisfactory features at present in connection with the mine. One is that the health of the employés is good. (Hear, hear.) During the last few months it has been perfect. We have had one or two slight attacks of fever, but the longest case did not necessitate an absence from business more than three days. Undoubtedly the reason is the great attention paid to sanitation, and the very strong instructions which we have sent out to the effect that they must have these matters constantly and particularly attended to. After all this climate, which is so much condemned, is not nearly so injurious to English people as some people say, and whoever goes out there, if only he will remain steady, sober, and industrious, will enjoy very good health. Another question which has occasioned us some little difficulty is the labour question. Some of our friends who think that England ought to have no foreign policy might learn something from the example I have to give you. We have allowed the French to get a preponderant influence on the Kroo Coast, and what is the result? The French Government have put taxes on each Krooboy to the amount of 24s., and we can no longer get a full supply of Krooboys. That shows carelessness on the part of the Foreign Office. (Hear, hear.) They ought to have been alive to what was going on. We have hopes that soon more Krooboy labour will be available, but it has been a drawback to us. You will notice that both captains in their reports talk about a new mill, and they seem to me to talk about it as if we could get one by whistling for it. Both gentlemen think that the erection of a new mill is a very necessary alteration, and they would not entertain that view unless they were convinced that there was a large amount of mineral to be extracted from the mine which would keep both the mills working. So far that is satisfactory, but we have instructed them not to proceed with the work until they are satisfied that the present mill is not able to cope with the large amount of mineral coming from the mine—a time which I trust may not be far distant. I don't think I need detain you much longer, but I thought it my duty to explain to you rather fully what we have been doing. I am very happy to bear testimony in this meeting to the zeal and ability of the very excellent staff of Englishmen we have on the property at the present time, and I think our most cordial thanks are due to them—(hear, hear)—for rendering us hearty service. I fully believe that in a little more time, and with a little more money, we shall be able to place the mine in a profitable condition.

Mr. HARRINGTON, lately one of the company's servants, said that although the company had had very bad luck during the last three years, they had an excellent property. They were certainly on the right road in regard to development, and he would urge them not to stop the works while there was sufficient labour to carry them on. The works were proceeding in a manner of which he was able thoroughly to approve, and he felt sure that within six months there would be a decided change for the better.

Mr. TIZARD, the clerk at Axim, detailed the present condition and extent of the company's properties, which he said were in a highly satisfactory condition.

Mr. FERGUSSON pressed for more certain information as to the value of the ore removed from the mine, and asked that the shareholders might be supplied with regular reports as to the manner in which the mine was progressing.

Colonel LE CHAMPION urged that the company's managers and captains should be given some direct interest in the success of the mine, which would, he thought, augment their zeal.

Mr. JAMES concurred in the demand for more information between the meetings of shareholders. He thought the property of the company a splendid one.

The CHAIRMAN promised to observe the wishes of the shareholders in supplying regular reports from the mine. He then proceeded to refer again to the financial position of the company, saying that the shares had 4s. 6d. paid up on them, and that the remaining 6d. would cover the liabilities to the end of next month. The board, however, hoped to obtain some £2000 in debentures, which would place the company in a sound financial position. He hoped the shareholders would consent to raise this money.

A vote of thanks to the Chairman and directors concluded the proceedings.

## THE NEWPORT ABERCARN BLACK VEIN STEAM COAL COMPANY, LIMITED.

### A satisfactory state of the finances.—Favourable current contracts.

The 22nd general meeting of the shareholders in the Newport Abercarn Black Vein Steam Coal Company (Limited) was held at the offices of the company, 12, St. Mary Axe, on Wednesday, the chair being occupied by Mr. W. A. SOAMES.

The SECRETARY (Mr. A. R. Mollett) read the notice convening the meeting.

The CHAIRMAN said: Gentlemen, I rise to move the adoption of the report and accounts for the year ending March 31st last. The output for the year was, as you see, 490,994 tons—a decrease of 40,125 on the year. The accounts show a profit of £8818, which is an increase of £5226. Considering that the strike, which occurred during the last year, necessitated the colliery remaining idle for four weeks, that is not so unsatisfactory a result. As I daresay you know, the strike did not originate in our colliery. It was nearly universal throughout South Wales and Monmouthshire, and our men were persuaded to join in it. The principle loss we sustained was by the repairs, which were necessitated by the fact that the men were not allowed to go down into the mine to do what was wanting. It is said that "a stitch in time saves nine;" but I believe that in colliery matters if the stitch is left undone the loss is even greater. As a matter of fact, the repairs in Pitwood alone thus rendered necessary occasioned a cost of £1400. In addition to that, however, the output was diminished during the next few months on account of the repairs. It was found impossible at that time to bring out the normal quantity of coal, which we had been in hopes of doing. Altogether the loss estimated to have been caused by the strike is not less than £5461 3s. 10d. How best to deal with this unexpected and extraordinary expenditure has been a matter which has engaged the serious attention of the directors. As, however, the reserve fund had been formed by the accumulations from year to year, out of the surplus of the profit and loss account—money which might have been distributed to the shareholders as dividends instead of being so put by—we did not think it unreasonable to write off from these accumulated profits the exceptional loss which had been occasioned by the strike. (Hear, hear.) Turning to the balance-sheet, you will observe that mortgages on cottages now stand at £16,607. This is less than the amount of mortgage on April 1st, of the previous year, by £1698 8s. 9d., and this we have paid off during the year out of our profits. On the other side of the account you will see that the expenditure has been increased by the sum of £854 9s. This was in additions which we thought it necessary to make in bunkers and air receivers. The air receivers we believe to be a very important addition to our machinery. Our motive power underground is compressed air, and our engines used to work in a very disjointed and fitful manner—occasionally at high pressure, and then for a few minutes they would have to be stopped, so that the wear and tear was very great. By the use of these air receivers we get a certain storage of this compressed air, the engines keep running and working much more continuously, and at a lower pressure, and the haulin gear underground in the mine keeps more steady and even. The mine account has been increased by the sum of £2179 9s. 2d. for opening up No. 3 pit and proving the fault. The fault does not run through the middle of our property, but it is marked on the plan by a red line on the left hand side, and runs diagonally through. Until this year we never actually proved the coal on the other side of the fault. It is now being proved, and it is found to be a seam of good coal, but whether we shall work it at present, or not, is a matter we have not yet decided. Out of this sum of £2179 we have written off this year £709 9s. 2d., leaving £1479 to be carried forward for another year. I daresay you have noticed that we have separated the amount spent on cottages from the amount spent on sinking and developing the mine. We have 340 cottages, which have cost us £40,000. We have given you the amount of the rents, which has never been included in the balance sheet before. We thought you would like to see exactly what return you have got for the money so invested. The total rents are £3903, and, speaking roughly, the sum is made up by rents of 4s. a week. In fact, 310 out of the 340 cottages are let at a rental of 4s. a week, a very reasonable rate, which gives satisfaction, I believe, to our employees. After payment of ground rent, rates and taxes, and repairs, there is a net balance of £2876, which represents just a trifle over 7 per cent. on the money invested. In the working account the amount received for coal is £185,632 5s. 6d., or a decrease of £18,274, due to the strike; and as the shareholders are in the habit of dividing the amount received for coal by the number of tons, which, however, does not give, perhaps, a quite correct idea of the prices realised, you will be interested to hear that the large coal has averaged 9s. 4d. per ton, and small coal 4s. 3d. On the other side of the working account we have separated pitwood and cogwood from the other materials used. It seems a large sum—£12,592 6s. 5d.—but the principle reason it is so high is that the black vein is a very thick seam of coal, and we have to use timbers 9 feet in length, which are very much more expensive in proportion than the timber in working thinner seams of coal. To meet the wishes of some shareholders, expressed at former meetings, the commission paid to our agents in charge of the coal has been entered separately, and amounts to £5701.

A SHAREHOLDER: How much per ton?

The CHAIRMAN: Three per cent. on the net sales. In the profit and loss account you will see that we have transferred £1000 to the reserve fund and £500 to the insurance fund, and we are left with a balance of £8818 10s. 9d., out of which the directors recommend a dividend of 6 per cent., less income tax, on the preference shares, and of 3 per cent. on the ordinary shares, leaving a balance of £309 5s. 3d. to be carried forward. There have been several changes at the colliery during the past year. As the colliery has grown and the amount of machinery increased, we think it advisable we should have a permanent resident engineer, who can devote all his time and attention to our engines. So we have selected Mr. Sydney Evans, who has been now some months at the colliery, in whom we have every confidence, and who, we think, will prove a very valuable officer of the company. Mr. Green, we regret to say, has sent in his resignation, and when we advertised for a new manager we had over 100 applications for the post. Of these, we have selected Mr. Robert Snape, who is now present to-day, and comes to us from an important colliery with the very highest testimonials. It is proverbial that "a new broom sweeps clean," and we hope he may be able to effect some economies in the working of the colliery. As we are parting with Mr. Green, I am glad of this opportunity of saying that I think the directors and shareholders are very much indebted to him—especially for two things. First, for the exceedingly pleasant relations which have always existed between the company and their employees. Mr. Green has a wonderful combination of tact and firmness in dealing with men, and though constant friction must arise with such a large body of men, he was always able to settle any little difficulty that cropped up. We also owe to him that during all these years we have been free from any serious explosion. When we think of the terrible disaster which has taken place in the Albion Colliery, we cannot but be thankful that by his careful supervision and management we have escaped any such eventuality. Later on I hope to ask you to allow us to contribute some small amount to the relief of the widows and children left destitute by this disaster. I think I have alluded to all the important points in connection with the balance sheet, but before I sit down you would very likely be glad to know something of our prospects for the present year. To explain it properly, I think I ought to tell you what many of you know—that the greater part of our large coal is sold by contract at the beginning of each year to our principle customers. We make contracts from January 1st to December 31st. At the beginning of last year in this way we sold at 8s. 6d. This year I am glad to say we have arranged contracts at very much better prices.

A SHAREHOLDER: What price?

The CHAIRMAN: I would rather not make it public to the whole world, but our contracts are for very much better prices, and I may tell you that the price for to-day is about 10s. 6d. a ton for our large coal sold from hand to mouth. Our contracts, however, have been made at even better prices than that, so that if we are free from strikes and trouble with our workmen and all unexpected disasters, we hope to meet you next year with a more satisfactory report, and the recommendation of a larger dividend than at present. I beg to move the adoption of the report and accounts.

Mr. W. LISHMAN seconded the motion.

Mr. EDGE thought the loss which had been sustained owing to the strikes a remarkably large one. He was connected with several companies, and they had all made a good thing out of it. One colliery, of which he was a director, had been precisely situated as their own, and they had realised a handsome profit of £20,000 by the strike.

The CHAIRMAN, in answer to a question as to the auditors' report, said that they had heard so much within recent years as to auditors' reports being valueless that he went personally to the auditor and suggested that the certificate should be made more extended, as at the present it expressed no opinion as to whether the accounts were in their proper form. Accordingly, he had received a letter from the auditor, in which he said:—"I believe the statements are full and fair, and exhibit a full and correct view of the company's affairs to date." That seemed to him to be a most satisfactory report.

Mr. BAGSHAWE, the auditor, explained that at the present time his audit depended to some extent on a smaller audit of the wages performed at the mine.

The CHAIRMAN, in answer to Mr. EDGE, said that the strike had certainly raised the price of coal, and it was because it had done so that the directors had been able to make such advantageous contracts for the current year. During the past year they had had large contracts for the sale of coal at 8s. 6d. a ton, and owing to the strike they had found it highly difficult to fulfil them. So that the benefit of the increased price would not be reckoned in the last financial year, but would come into the current one.

The motion for the adoption of the report and accounts was then put and carried unanimously.

The CHAIRMAN moved the re-election of Mr. T. J. Beynon as a director, saying that he had been so long connected with the colliery that there needed no words of his to convey how valuable he was to the board of directors. His knowledge of sales and trade made him positively indispensible to the board.

Mr. BELL seconded the motion.

Mr. MORO asked whether it was not the case that Mr. Beynon traded in the coal of the colliery.

The CHAIRMAN replied that Mr. Beynon was agent for the company, all of whose coal passed through his hands. He had offices at Newport, and a large staff of clerks, and his knowledge of the trade was of the highest service to the company, in addition to which he acted as guarantor, receiving, to cover all these services, 3 per cent. Mr. Beynon traded in coal in many parts of the world—where the company positively declined, in view of all the risks, to trade—and he got some of his coal from the company, but never at one farthing less than the market rate—a very small portion of the company's coal, and none at all without the approval of the committee, whose especial office it was to control the sales.

The motion for the re-election of Mr. Beynon was then put and carried.

Mr. BEYNON briefly returned thanks for his re-election, explaining that he acted as guarantor for the company, and took all the risks of demurrage as well.

On the motion of the CHAIRMAN, seconded by Mr. BEYNON, Mr. Bell was re-elected to the directorate.

The CHAIRMAN then called the attention of the meeting to the recent accident in the Welsh coal mine, and asked for permission to contribute on behalf of the company 100 guineas to the fund being raised on behalf of the widows and orphans of the men killed—to the Miners' Permanent Fund, to which all the miners subscribed, but which would be swamped without such aid.

Permission was cordially given from the body of the meeting, and with a hearty vote of thanks to the Chairman and directors the proceedings terminated.

## SUTHERLAND REEF, LIMITED.

### An account of the liquidation.

An extraordinary general meeting of the shareholders in the Sutherland Reef, Limited (in liquidation), was held on Tuesday, at Winchester House, the chair being occupied by Mr. N. F. ROBARTS, the liquidator.

The notice convening the meeting having been read,

The CHAIRMAN briefly detailed the accounts of the liquidation of the company, which had been audited by Messrs. Cooper Bros., and these, on the motion of Mr. J. HARRIS, seconded by Mr. R. T. BROWNE, were received and adopted.

A second resolution, on the suggestion of the CHAIRMAN, was carried, ordering that the accounts, documents, and books should be handed over to the new company.

The CHAIRMAN stated that the proceeds of the sale of 35,680 unalloted shares in the new company amounted to some ·425 of a penny per share, which would be distributed at the offices of the company.

The CHAIRMAN, at the conclusion of the business, gave to the meeting some account of the operations which had been conducted at the mine since the new company had taken the property over. He said: You are aware from circulars issued from time to time that Mr. Procter, one of our directors, went out, appointed Mr. Stephens as manager, and purchased a 20-stamp battery, which we were able to obtain exceedingly cheap—in fact, we could have resold it the other day at £1000 profit—and which battery is now, we hope, on the road to the mine. Unfortunately, owing to the difficulties which have arisen between the Boers and the natives, we have had some trouble in the matter of transport in the last few weeks, and it is possible, therefore, that the machinery may not arrive at the mine quite as soon as we anticipated. Mr. Stephens has been in Johannesburg for, I think, about six weeks, and we have a letter from him this week saying he was still unable to get transport, as the transport carriers are afraid of having their wagons and oxen commandeered by the Boers, and, of course, that would be unfortunate for them and for us if our machinery were left half-way between Johannesburg and the mine. He writes under date June 25:—"I have sent up to the mine six wagons loaded with provisions and other stores. I had great difficulty in getting those wagons to go up. I had to pay three of the wagons 11s. 6d. per 100 lbs. and three 10s., and was glad to get them at that price seeing that we were getting short of stores at the mine. I am promised four more wagons this week, but can't depend on them.' Then we have a letter from the cashier at the mine, dated 21st June, giving the latest information with regard to the war, which may be interesting. This says:—"I regret to learn from Mr. Stephens, who is still in Johannesburg, that he is unable at present to obtain transport for the battery, but you will no doubt see the *Zoutpansberg Review*, showing how the war is progressing. Malabock is, I believe, practically crushed, but Magats is the strongest chief, and has not yet been attacked. It is reported that General Joubert intends when he leaves Malabock to take Mamatolas next, and that all of us in the low country will be ordered into laager at Thabena; but I hope this will not occur, as I hear Mamatolas has submitted. It is very unfortunate that this trouble should occur at the present time, causing delay in getting up the machinery." We are also delayed in getting timber to the mine for the shaft, for the same reason, that we cannot get transport; otherwise everything is going on smoothly with regard to our future plant. The whole of the plant has left here for pumping and pipes. We have a very long distance of pipes, as you know, from the watercourse up to the mine. That ought all to be landed in Port Elizabeth in the course of the next fortnight, and, therefore, there is plenty of time to get that up, to lay these pipes, and to erect pumping plant, if transport can be obtained, so as to get all ready by the end of the year. By that time we hope to be able to complete the erection of all the machinery, so as to start crushing in January. When the new company was formed, we got very considerable concessions from the vendors of the old company, of claims upon the Mynpacht. We had in the old company 80 claims on the Mynpacht. The area which we now have is equivalent to about 290 claims, or more than 3½ times the area we formerly had. These claims are about 1 mile in length upon the outcrop of the reef, and about two-thirds of a mile in depth. We have about 35 claims on the line of reef itself, which will come to the mile distance. Our property, therefore, is enormously improved, compared with this time last year. Then, we formerly had power to draw only a limited quantity of water; we can now have practically an unlimited quantity. We have, I believe, water sufficient to run 500 stamps if ever we needed to, and that is exceedingly valuable, because we may desire to crush ore for others as well as our own, and to whatever other mines there may be developed on our property, we shall be able to give the water power. With regard to the finances of the present company, we have still three calls to get in, amounting to £5500 each, or £16,500 in all, which, with the moneys in hand, will give us close on £17,000 in sight. We have, after paying for the whole of our machinery, about £10,000 to £11,000 to spend upon carriage and erection of machinery and development of the mine. A great portion of the expenditure for the erection of machinery has already been incurred, because the foundations are in for the battery, and money has been remitted for them, so we see no prospect of being short of money if the mill is ready to run on 1st January, and we shall then be able to spend a considerable sum upon the development of the mine. Then the main shaft, which is an incline shaft, is being laid with a double line of rails, and will be fully sufficient to raise any quantity of ore that a much larger battery than ours of 20 stamps would require. The incline shaft is now made, and the rails laid, I think, to 150 feet in depth; we are down to 120 feet, and are now driving levels. This is the mine report which came in this week:—"I have now to report the following work done during the past week:—Main shaft. The station at the 210 feet level is now completed. We shall start sinking from there in the course of a day or two.—West drive. Eight feet have been driven, making in all 39 feet. The reef here is somewhat broken, but shows very favourable results in panning.—East drive. Five feet have been driven, making in all 25 feet. We find that the reef has previously been left in the hanging wall, which we have been stripping down, and we frequently see a little visible gold, and the reef is well-defined.—Head gear. The carpenters have been at work on the ore bins and skip road, which are now nearly completed. Little further can now be done to this until the timber for the guides, &c., arrives. The masons have been at work on the three new white men's rooms, plastering the outside of the dining-room and erecting the partition wall in the hauling engine-house.' While the shaft has been sinking the ore has, of course, been accumulating in the upper levels, and now that the shaft is finished and the gearing completed, it can be raised to the surface, and we anticipate that by 1st January we shall have at least 5000 tons at grass, so that we shall have an ample supply for the 20 stamps. The manager points out distinctly and definitely that he will have no difficulty whatever in keeping the 20 stamps supplied when the

battery once begins to run. As to the value of the ore, we have already advised you that at 150 feet we had an average sample assayed, which came out at 5 ounces 11 dwts. That was a fair average sample, according to Mr. Stephens. He wrote:—"The samples of rock were taken by my brother from the reef in the main incline shaft just above the 200 feet level, which is a fair average of the reef at this point." Of course, mining assays are very deceptive, but Mr. Stephens certainly considers that this is a fair assay of the average reef at that point. Still, I do not want to hold out too great hopes about 5 ounces ore. We shall be very well satisfied if we get 1 ounce, and I think you will find that it will exceed 1 ounce. I have now told you, first, that we have sufficient capital to carry us safely to the time that our battery starts, unless anything quite unforeseen occurs; next, that we shall have plenty of ore when it does start; and, thirdly, that the ore is sufficiently rich to give a handsome profit, as far as we can ascertain. (Hear, hear.) That, I think, is about the best answer we can give to the anonymous letters which have been published. You are aware that a certain print—not to call it an obscure one—*The Watford Leader*, was sent to every shareholder some time in June, dated May 8, containing a re-hash of certain letters which appeared in the mining papers on March 10. What the object was in sending this out I leave shareholders to divine. I believe I know who the writer is, I believe he was a shareholder in the old company, who sold his shares some time ago. Unfortunately, although he wrote his letters anonymously, his address appeared in one paper, and as we had only one shareholder at that address I think we know who he is. (Laughter.) If he is present and has anything to say, we shall be pleased to hear him.

Mr. BROWN proposed a hearty vote of thanks to the Chairman and directors for the admirable manner in which they had carried on the liquidation and transferred the property to the new company. (Hear, hear.)

Mr. DICKMAN seconded the motion with the inclusion of the name of Mr. John Procter at the instance of the Chairman, which was carried unanimously.

In returning thanks, the Chairman said the success of their work was owing to the assistance given by that gentleman on his visit to the mine. He hoped it would not be long before Mr. Procter went out again, as he understood he intended to do.

The meeting then closed.

## HOLCOMB VALLEY COMPANY, LIMITED.

### Resignation of the manager.—Creation of 108,000 preferential shares.

The second ordinary general meeting of this company was held on Tuesday, at the Cannon-street Hotel, Mr. THOMAS A. MEATES, he Chairman, presiding.

Mr. EDWARD WHEELER (the secretary) having read the notice convening the meeting,

The CHAIRMAN said he regretted not being able to meet the shareholders at an earlier date, the reason being that their manager (Mr. Pedley) had failed to forward the accounts in a manner satisfactory to the auditors. After the meeting last year, Mr. Pedley went to California at the beginning of May, and ordered the steam shovel amalgamator and other machinery requisite, for the purpose of developing the company's property. On the 7th of June Mr. Pedley wrote that they would probably be at work by the 15th of July. His hopes, however, were falsified, not from any fault of the directors or of the manager, but simply from the fact that there was such an entire dislocation of every industry in California and throughout the United States, that it was impossible to get delivery of the machinery contracted for. It was not until the 30th of August that the machinery arrived, and even then some of the essential parts were missing. Another drawback the company had experienced was the failure of the Pacific Bank, in which was deposited a sum of about £1500 pending the delivery of the machinery. The bank was now in the hands of a receiver, but Mr. Pedley's opinion was that there would not be much ultimate loss to the company. Another institution in Los Angeles, where the company had about £400, also suspended, although it re opened within a month. Before the machinery arrived Mr. Pedley had sampled some 450 cubic yards of gravel, and result was that it yielded about 2s. 4½d. per cubic yard. Work was commenced with the new machinery about the middle of November and carried on till January 5th, when it was suspended, the enginemen not being able to stand the severe cold at night without the protection of the sheds, which were not then completed. Expectations of what their steam shovel was likely to do had not been realised, but on the whole he thought the prospects not less bright than were originally anticipated. The average daily return was increasing, the latest reports being 120 cubic yards. Their original estimate was 600 cubic yards *per diem*, of which the machine was undoubtedly capable. The present pumping plant, however, was inadequate. They had a supply of 100 inches of water daily, of which 60 inches were required to obtain the full results originally estimated; whereas the pumps were only capable of dealing with 30 inches. To remedy this, £500 was required for pumping machinery, and probably another £500 for housing the men and other items. He thought when they had this new machinery they would be doing just as well as their neighbours, there being no doubt that the steam shovel is more economical than the old-fashioned hydraulicing. In addition to the free gold, Mr. Pedley believes that he has discovered in the black sand, which, up till now, has been allowed to run to waste, a possible source of considerable profit. Analyses of this have been made in London and California. Mr. Pedley believes that the value of the black sand in the gravel amounts to 40 cents, say 1s. 8d., per cubic yard, in addition to the value of the free gold, and while the analyses of the London assayers are less favourable, they show that it is well worth preserving, and likely to add materially to the profits of the company. Despite all delays they had cut through 2000 cubic yards averaging 1s. 5d. It was very satisfactory to him (the Chairman) to be able to say for the first time in the company's history that it was more than paying its way, and no call was being made on anyone in London. The Chairman then moved the adoption of the accounts and report.

Mr. HORACE J. NEVILL seconded.

In reply to questions, the CHAIRMAN said that Mr. Pedley had tendered his resignation owing to the pressure brought to bear upon him by the directors relative to the accounts, which had not yet been received. Another manager had been appointed.

The report was adopted.

Colonel W. Carey, C.B., the retiring director, was re-elected.

Resolutions were then passed increasing the capital to £140,400 by the creation of 108,000 shares of 1s. each, such shares to be preferential until dividends equal to 6d. per share shall have been paid on them.

A hearty vote of thanks to the chair terminated the proceedings.

THE KIMBERLEY DIAMOND MINING COMPANY.—The annual general meeting of the Kimberley Diamond Mining Company (Limited) was held on Tuesday, at the offices, Finsbury Circus, Mr. C. J. Posno, presiding. In moving the adoption of the report, the Chairman said the accounts were for the half-year ended December 31 last. He had ordered them to be prepared up to that date, so that in future the financial year of their company and of the London and South African Exploration Company might run concurrently, there being many transactions in which the two were jointly interested. In accordance with the recommendation of their auditors £2793 had been written off from the cost of plant and machinery, buildings, furniture, tramways, rolling stock, and stores, which stood at upwards of £5300, and now went forward in the new account at £2578. Since the accounts were made up, £1250 had been received from the London and South African Exploration Company as their share in certain transactions, and they were confident of receiving from that company another sum of at least a similar amount.—Mr. Louis Schott seconded the resolution, which was adopted.

## LEVANT.

### Profit of £320.—Dividend of 2s. 6d. per share.

A four month meeting of the shareholders in Levant Mine, St. Just, was held on Tuesday, the PURSER (Mr. Richard White, C.C.) presiding.

The accounts showed—labour cost, £7660; merchants' bills, £2281; coals ex-shipboard, £892; rents, rates, and taxes, £103; and interest and commission, £41 On the credit side the tin sales were 214 tons 12 cwts. 2 qrs. to the Consolidated Tin Smelting Company (Limited) for £9073, less lord's dues £365—£8708; copper ore sold, £2070, less lord's dues £100—£1970; carriage of copper ore, £157; arsenic so'd to Cornwall Arsenic Company, 58 tons 10 cwts., at £7 7s. 6d.—£434, less lord's dues, £21—£413; old iron sold £4; and discount on merchants' bills, £45. This made a total of £11,298, and left a profit of £320, and a balance of £897.

The AGENTS (Captains L. Trembath, Sampson Murrish, and J. White) reported as follows:—

> The 302 level west on the south lode is worth £30 per fathom for copper driving at £10. The stope in bottom of this level is worth £12, stoping at £4. We have three stopes in back worth £20 per fathom for copper, stoping at £8; and five stopes worth £6 for tin, stoping at £2 15s. The 290 level west on south lode is worth £16 per fathom, driving at £11. The stopes in back of this level are worth on an average £10 per fathom, stoping at £3 10s. The 278 level west on south lode is poor, driving at £7 per fathom. The stopes in bottom of this level are worth £12 per fathom, stoping at £5 2s. 6d. The stope in back of this level is worth £8 per fathom, stoping at £2 15s. The 260 west on south lode is worth £6 per fathom, driving at £7 10s. The stopes in back of this level are worth £7 per fathom, stoping at £3. The 250 west on south lode is worth £6 per fathom, driving at £7. The stope in back of this level is worth £7 per fathom, stoping at £4 10s. The 250 east of crosscut on south lode is worth £5 per fathom, driving at £7 15s. The 240 east of crosscut on south lode is worth £7 per fathom, driving at £3. The stopes in back of this level east and west are worth on an average £7 per fathom, stoping at £3 10s. The stopes in back of the 230 level west of crosscut on the south lode are worth on an average £5 per fathom, stoping at £2 15s. The 230 west on the south lode is worth £13 per fathom, driving at £15 per fathom. The stope in back and bottom of this level is worth £12 per fathom, stoping at £5 10s. The stope in back of this level east of cross course is worth £5 per fathom, stoping at £3 10s. The 210 west on the south lode is poor, driving at £6 5s. The stopes in back of this level are worth on an average £7 per fathom, stoping at £2 5s. The 190 level west on the north lode is worth £7, driving at £3. The stopes in back of this level on the north lode are worth on an average £5 per fathom, stoping at £2 5s. The 150 on the north lode is worth £6 per fathom, driving at £6 10s. We have driven in ends for the past 16 weeks 134 fathoms 4 feet, and are now driving 13 ends by 50 men and six boys, and we have 166 men and 12 boys working in stopes, &c. We have 43 men and seven boys working in 21 pitches, varing from 6s. to 19s. in the £. Total on tutwork and tribute 259 men and 26 boys. Total employed in every department underground 340 men and 41 boys. We expect to raise about the same quantity in the ensuing 16 weeks as we have in the past.

The CHAIRMAN said that at the last meeting the balance in hand was £577. Since then they had bought Californian stamps, or they would have made a greater profit.

In reply to Mr. H. OLDS, he explained that although Mr. G. Eustice was paid a monthly salary for superintending the machinery, &c., his bill of £24 was based on the customary extra charge of one guinea per inch on all new machinery erected.

Mr. P. OLDS thought they should not have any dividend.

Dr. QUICK: You must be a rum fellow. I beg to propose we have a dividend of 5s. a share.

Mr. P. OLDS: I beg to propose that we don't have any.

Dr. QUICK: What is the hindrance from having a dividend?

Mr. P. OLDS: Because the price will go lower.

Dr. QUICK: Let it go lower. Let it go to the devil. If this humbugging goes on I shall give up my shares. I propose we have a 5s. dividend.

The CHAIRMAN: I don't think it is wise.

Mr. PETER OLDS made some interesting remarks on the maintenance of children, which seem affected by the receipt of dividends.

Captain W. JAMES believed they had paid the full rate of dues.

The CHAIRMAN said that was so.

Mr. DOIDGE reminded Mr. Quick that the profit did not amount to a 5s. dividend.

Mr. E. BOYNS said it would be rather foolish to divide money while they are still paying interest and commission to the bank.

Dr. QUICK: If you don't pay a dividend now you never will. It is all humbug to spin a lot of yarns and raise 10,000 tons of tin for smelters and other people.

Mr. GEORGE COULSON: We cannot help that. I move that the balance be carried forward.

Mr. P. OLDS seconded.

Captain JAMES: Modify it to 2s. 6d.

Dr. QUICK: Raise tin and copper and then never declare a dividend? It is humbug, sir; it is downright humbug.

Mr. COULSON withdrew his proposal, and Dr. Quick was eventually prevailed upon to agree to the half-crown dividend.

The motion for a half-crown dividend was carried unanimously.

## THE MYSORE REEFS GOLD MINING COMPANY, LIMITED.

### Discovery of gold in paying quantities.—Crushing commenced.

The third ordinary general meeting of this company was held on Wednesday last, at the Cannon-street Hotel, Mr. JOHN H. EVEY, J.P., D.L. (the Chairman of the company), presiding.

The SECRETARY (Mr. John Garland) read the notice calling the meeting, and the report was taken as read.

The CHAIRMAN said: Gentlemen, there is a very old saying which I daresay is known to you all—that "everything comes to the man who knows how to wait," and it seems true in our case; for after many years of waiting and working we seem to have at last found gold in earnest. Indeed, our conviction—and when I say our, I mean the conviction of the board and the manager on the other side—is that as soon as this property becomes more fully developed we shall find ourselves in possession of a mine which will equal if not exceed in richness any in the southern part of India. I think it is a fair matter for congratulation that within 12 months of acquiring this property not only have we discovered gold in paying quantities, but actually started crushing. That, I think, will compare favourably with the history of any gold mine, either with which we are personally connected or in the history of mines. This property we believe to be a most valuable one. It covers an area of about 1150 acres, or nearly two square miles, a very large increase on the property which this was originally started to work. Of course we had a good deal of difficulty in completing this purchase. We had first of all to consult the shareholders; then we had the debentureholders to deal with, because the founders made it a *sine qua non* that only a very small proportion of debentures should be allowed to remain. We on this side of the table who are all debentureholders, set the example to the others, and notified our intention of accepting preference shares in lieu thereof, and I am glad to say our suggestion was carried out by the bulk. However, a few insisted on being paid off—only about £420—and the amount of debentures at present outstanding is only £2760 out of the total of £13,200. On the last occasion when I addressed you I told you that the South-East Mysore Company had approached us with reference to the purchase of a small piece of our property. We were willing to let them have it on reasonable terms—in fact, practically on the terms on which we bought the rest of our property. In doing so, we had two objects in view; first, to get rid of a piece of ground that could never be of much value to us, because it is evident that the lode would soon pass out of our property into that of the other company, and, secondly, because it was to our advantage to see whether the richness of the ground extended in that locality as well as in other parts. That purchase has practically been confirmed. It is only a small matter of 57 acres, but we have every reason to believe that the ground will be found equally as good as that we have been working ourselves. Of course, this is not a time to say much about it, but shareholders I think, ought to bear in mind that if we do find ourselves in possession of a valuable mine—I will not say I prophesy that we shall do so, but if the conviction becomes a reality it will not be difficult to start subsidiary companies to work other portions of this property. I daresay if the vendors were here they would think we were having it all our own way, but I do not think that is the case at all. The vendors held this property for some considerable length of time; they could do absolutely nothing with it, because the market was not in a state for the floating of new companies, and I think they were very wise in coming to us and making arrangements with us to work their property, because they will eventually benefit by it. It is a curious coincidence that just before we had the property introduced to us we were seriously contemplating calling the shareholders together and recommending them not to spend more money on the old property. The coincidence is in this way. Some years ago the Mysore Company held a meeting, in this very room, I believe, at which they left it to the shareholders to decide whether they would proceed with the company or wind up. The capital was about £13,000, and the working capital of our company when we entered into negotiations for the purchase of this property was about the same amount. As you know, there was no case of reconstruction with the Mysore after that, and I anticipate no question of reconstruction again with this company. We have something over £4000 available cash, and also upwards of £2500 preference shares, which, if the market value of the shares improve, we should no doubt be able to sell at par, and, in addition, we have a few forfeited shares. I think with the gold returns which we may reasonably now expect, and that money to fall back on, it will not be necessary for us to call upon the shareholders for further moneys, unless it be with their sanction to further develop the property, and in that case, no doubt, people will be ready to come forward and subscribe. The report of the manager enters very fully into the details of the working, but I do not wish to enter upon that, as Mr. Taylor, who will second the resolution I am about to put to you, will speak to you on that matter. I now have simply to move that the report and accounts, as presented, be received and adopted. (Applause.)

Mr. JOHN TAYLOR: I have great pleasure, gentlemen, in seconding the resolution which has been placed before you. The shareholders who attended the general meeting held about a year ago will recollect that I then pointed out the reasons which led me to believe that in acquiring this Valley property we should be taking up a mining speculation of very great promise, and I told you the chief reason I had for thinking so was the magnitude of the old workings to be seen at the surface, which were then described in a report prepared by our good agent, Captain Scantlebury. He described it as of vast proportions, and indicated the richness of the reef, as worked upon by former generations. Now, for the purpose of developing the reef below these old workings two shafts have been sunk—one called the Underlie shaft, commencing on the old workings and sinking through them, and the other called the Vertical shaft, sunk on the west side of the reef and designed to intersect it at the depth of 225 to 250 feet. The underlie shaft reached the bottom of the old workings at about 80 feet from the surface. From there they sunk to 135 feet on the course of the reef, which has averaged 2 feet 8 inches in width, with an average assay value of 17 dwts. The cable message received yesterday is as follows:—

> 200 feet level north of vertical shaft, width of lode 1 foot 6 inches, assay value 14 dwts. of gold to the ton. 200 feet level south of vertical shaft width of lode 2 feet, assay value 7 dwts. Winze below 200 feet level south of vertical shaft, width of lode 1 foot, assay value 11 dwts. Underlie shaft, width of lode 2 feet, assay value 1 ounce 6 dwts. 200 feet level north of underlie shaft, width of lode 9 inches, assaying 16 dwts. 250 feet level south of underlie shaft, width of lode 1 foot 6 inches, assaying 1 ounces 13 dwts. Mill trial fairly satisfactory: yield 1 ounce 5 dwts. per ton.

I do not know why Captain Scantlebury uses the word "fairly," but no doubt it has occurred in the code. As I was saying, in the underlie shaft the sinking was delayed, in consequence of the commencement of the two levels at 250 feet. That has now been resumed, and the shaft is going down with the lode. You will bear in mind the importance of this, because it is the deepest part of the mine up to the present, and in a letter dated June 26, we have a very important piece of information with regard to the bottom of the shaft. That information is that in opening at the 250 feet level it is discovered that the best part of the reef is to the west. At 250 feet deep levels have been driven north and south on this reef. In the report of the 28th May, Captain Scantlebury says that the 250 feet level had been driven then north 30 feet, the average width of reef was 1 foot 3 inches, and the assay was low enough, only 3 dwts. But he said the lode was opening out, and in the course of a few feet more, he had not the least doubt they would get a shoot of ore in the shaft which had every appearance of dipping rapidly to the north. Four days later than that, on 2nd June, he cabled to us that the lode in this place was 3 feet 3 inches wide, that the average assay value was 1 ounce to the ton. In a letter dated three days later he tells us that it is opening up a splendid piece of stoping ground between the two shafts and the point up to the 250 feet level. The next report of the 12th June tells us the level had been driven 46 feet, that the reef was 3 feet wide, and assaying from 8 dwts. up to 1 ounce 19 dwts. The cable message says that the reef pinched yesterday, that it is only 9 inches wide, but still worth 16 dwts., so that we are going to have still a good productive reef. South of the underlie shaft the 250 feet level had been driven, according to the printed report of 28th May, 28 feet; the average width was small enough, being only 9 inches, of the very low value of 2 dwts. But Captain Scantlebury tells us that just to the south of this point there are very extensive old workings, and in this report he says it is reasonable to expect that this level will soon be in good ore. You will note the correctness of the anticipation, as the cable message tells us the reef is 1 foot 6 inches wide, and worth 1 ounce 13 dwts.; so that he is evidently well into the productive shoot of ground worked by the ancients in the workings above. The vertical shaft has been sunk 200 feet, and a cross cut was driven east from the bottom 54 feet to the lode. At the point of intersection it was 8 feet 9 inches wide, with stones of quartz carrying visible gold. From that cross cut the 200 feet level has been driven. On the 28th May it was 62 feet in the lode, averaging 2½ feet wide, with an average assay value of 3 ounces 3 dwts. You will see they have driven there through a good shoot of quartz. The report of the 12th June tells us we had then gone 82 feet, the size of the reef being 1 foot 9 inches wide, and assaying from 6 dwts. to 1 ounce 12 dwts., and a sample of selected pyrites assayed as high as 16 ounces, so that we there have a nice quantity of gold. The 200 feet level has been driven south according to this report 59 feet with an average width of 1 foot 7 inches, and an average assay value of 1 ounce 11 dwts., so that you see we have a very fair length of ground already opened out, although we are comparatively in our infancy. The cable message of the 2nd June to which I have already alluded spoke of this place as being 18 inches wide, and worth 6 ounces. The report of the 12th June says that the 200 feet level had been driven then 83 feet, that the reef discovered is 3 feet wide, assaying from 6 dwts. to 6½ ounces. The cable message tells us that the reef in the level is 2 feet wide, worth 7 dwts., and the winze 1 foot wide, and worth 11 dwts. I think you will have gathered that every effort is being made to push on the works, and the Chairman has told you how we have done all this in a very limited time. The great effort we have now to make is to get communication between the two shafts as early as possible, in order to secure in the first place good ventilation by having up-cast and down-cast shafts, and further it is very important now we have the mill to see that we may be able to put a good number of men on to stope away the quartz discovered. I think you will all feel the truth of the new paragraph in the directors' report on page 6, which describes the report of Captain Scantlebury as "a record of energetic and successful mining, reflecting great credit upon him and his staff." (Applause.) It is very clear—and this is a very important point—from the accounts that this work has been carried out, not only rapidly, but at a very moderate cost, and I believe you will all agree with me that we should accord Captain Scantlebury our best thanks for his efforts, and also our thanks to the staff that he has working with him. (Applause.)

The CHAIRMAN, in reply to a question, said that the attention of the board had been directed to statements in some of the financial papers to the effect that the market for the shares appeared to ad-

vance before the shareholders could get the information which caused it to do so, and seeming to indicate that the directors managed the business. The board repudiated such a suggestion, but they had noticed that if there were any good news, the market was always in advance of the telegram reaching the office. From enquiries they found there was a large native shareholder, who seemed to get prior information, and where many were employed it was difficult to prevent such information being given. It was not part of the policy of the board to endeavour to make money at the expense of the shareholders. (Applause.)

The report was unanimously adopted.

The election of Major General Beresford and Mr. C. H. B. Forbes as directors was confirmed.

Messrs John Harvey and John Taylor were also re-elected directors, and Messrs. Jepps and Swaffield were reappointed auditors.

The meeting closed with a vote of thanks to the directors, manager, and staff.

## THE BECHUANALAND EXPLORATION COMPANY, LIMITED.

### The amalgamation scheme withdrawn.—The company's extensive properties.

An extraordinary general meeting of the shareholders in the Bechuanaland Exploration Company (Limited) was held on Thursday, at the Cannon-street Hotel, for the purpose of considering special resolutions, winding-up the company, for the transference of the undertaking to the Bechuanaland and United African Company (Limited), in amalgamation with those of the Southern Land Company and the United African Syndicate.—Lord GIFFORD, V.C., presided.

The SECRETARY (Mr. H. K. Evans) read the notice convening the meeting.

Mr. HOLLOWAY, rising immediately after the notice was read, was heard, amid loud cries of "Order," to express a wish that the proceedings might be as brief as possible, seeing that the amalgamation scheme was of such a character that no one would consent to consider it for a moment.

The CHAIRMAN said it was usual to hear the speech from the chair before proceeding to discussion. (Applause.)

Mr. HOLLOWAY again rose to speak, but

Mr. HAWKESLEY, the solicitor to the company, explained that the meeting had been summoned by the directors of the company, and it was out of order for any shareholder to speak before the Chairman had given his address. (Applause,)

Mr. HOLLOWAY rose once more, but being received with loud cries of "Order," resumed his seat.

The CHAIRMAN said: Gentlemen, I am very pleased that you have supported the chair in this way. In view of the interest I have always taken in the Bechuanaland Exploration Company, I am perfectly certain that the consideration I have invariably had from the shareholders will be again extended to me, and that I shall have a fair and impartial hearing. (Applause.) We propose for your consideration an amalgamation of interests with the object of economy of management, and with the view of meeting the conditions of the time, which show that large and powerful corporations can alone, with any success, hold their own in the keen competition for business in South Africa. Your company was established, as you are aware, in 1888, for the purpose of acquiring and working a mineral concession in the Bechuanaland Protectorate, granted by the well-known Chief Khama. Unfortunately the prospecting operations in which this company embarked in order to develop the mineral concession showed no favourable results, and it became tolerably certain that if we were to confine ourselves to the Khama concession our working capital would be expended without any adequate return, and liquidation would inevitably follow. Happily, however, we were able to take advantage of the opening up of Mashonaland in 1889, when we established the Bechuanaland Trading Association, which, under the management of Messrs. Mosenthal, has been, as you are aware, most successful. A little later, by careful expenditure of no very considerable sums, we were able to secure mineral and land interests in Mashonaland, and were among the earliest of the companies that embarked in operations within the territories of the British South Africa Company. The nucleus thus formed has rapidly extended until at the present time, as you were made aware by the report presented at our annual ordinary meeting in December last, and by the report of Messrs. Cooper Brothers and Company, recently issued, this company has numerous and extensive land and mining claims in both Matabeleland and Mashonaland. The initial risks undertaken by this company were shared by Messrs. Mosenthal, our agents in South Africa, and certain of the claims are held on joint account by our company and Messrs. Mosenthal. This is why the suggested amalgamation includes a proposal to acquire these interests belonging to Messrs. Mosenthal. The completion of the arrangements with the British South Africa Company, under which the Khama concession was taken over from us by the latter, very largely augmented our interests in Mashonaland and Matabeland. In consideration for the transfer of the Khama concession, this company received certain rights from the British South Africa Company, including shares in the United Concessions Company, and land and mineral claims; and thus it comes about that at the present time substantially the whole of our capital is embarked in the British South Africa Company's territories. The few remaining assets consist of shares in gold mining and other companies in the Transvaal. According to the best judgment we can apply to the consideration of the value of your assets, we have our capital intact, and, indeed, have a very substantial margin beyond. (Hear, hear.) What, however, is required to continue the success of this company is, not to withdraw our funds for distribution, but, on the contrary, an augmentation of working capital to give us increased power. As I have already stated, at the present day small companies have but little chance of success—the profits go to the strong, and if we are to develop our existing assets to the best advantage, and extend our operations, we must combine forces with those in a strong position having kindred interests. The particular combination submitted for your approval has been suggested, no doubt, in consequence of the close and friendly relations that exist between those controlling the three companies. The United African Syndicate is managed by Messrs. Mosenthal, our own agents in South Africa and our partners in Mashonaland ventures; while the board of the Southern Land Company includes two of your directors. You have frequently expressed the view that the interests we hold on joint account with Messrs. Mosenthal should be got in. We share this opinion, and have, therefore, stipulated that Messrs. Mosenthal shall transfer their interests to the new company, which they have agreed to do, taking fully-paid shares only, and no cash, in exchange. The United African Syndicate was formed by Messrs. Mosenthal in 1888, and includes shareholders of influence. Its assets comprise shares in De Beers Diamond Company, in the Consolidated Gold Fields of South Africa, in the Geldenhuis Deep (Limited), in the Consolidated Deep Levels, in the Rand Mines (Limited), and in the Gold Fields of Mashonaland (Limited). It has, in addition, shares and interests in a number of companies and ventures, some of which are undoubtedly of a speculative character, the exact value of which cannot be readily or accurately determined; but we are satisfied that in acquiring the United African Syndicate undertaking for 55,000 shares in the new company we get full value. The original scheme was to give shares only, and no cash, for this property, but subsequently an option was proposed to be given to the United African shareholders to take instead cash at par. Messrs. Monsenthal undertake to take shares only for their shares in the syndicate—more than a fourth of the whole—and to influence their friends to do the same. Now, however, having regard to some fall in prices, it has been thought better not to give the option, and the syndicate will only be brought into the amalgamation on the footing that the shareholders take the £55,000 in shares in the new company. Certain statements have been made to the effect that your directors had some personal interests to serve in advising the acquisition of the United African Syndicate and Messrs. Mosenthal's joint account interests. You know us too well to give any credence to these rumours, but I can say for myself, and am authorised by my colleagues on the board of both this company and of the Southern Land Company to say for them, too, that no director of either company has, or ever has had, any interest, directly or indirectly, in either the United African Syndicate or the assets proposed to be taken over from Messrs. Mosenthal. (Hear, hear.) I have told you the circumstances that led us to propose closer relations with Messrs. Mosenthal, and I will only say this further—I am convinced that the advantages you have already derived from our connection with Messrs. Mosenthal will be increased by these new arrangements. As respects the Southern Land Company, Mr. Dawston and myself are on the board of directors, and are intimately acquainted with the prospects of the company. Its position has undoubtedly very materially improved lately, and I can safely say that the market price of the shares of that company does not represent the intrinsic value of its properties. (Hear, hear.) During this year the company has sold one-sixth of a large block of land purchased from the Government of British Bechuanaland at a profit of 100 per cent., and the agents of the company report that there is a good prospect of the remaining farms of this block being sold at remunerative figures. Several enquiries for these farms have been received quite recently. But, perhaps, its most valuable farms are in Griqualand West. These are situated along the line of the Bechuanaland Railway, which is completed from Kimberley to Vryburg, and is now extended almost to Mafeking. The company has also three farms in the neighbourhood of Vryburg, where land is steadily increasing in value. Finally, the uncalled capital in the Southern Land Company (£20,000) is to be paid up, and this and other cash will give the new company not less than £25,000 from the Southern Land Company, while there are liquid assets which could be readily sold to produce another £7000. We believe that the combination of interests that will be brought about by the proposed amalgamation, and the influence that the new company will be able to exercise, will be of advantage to all. It will enable us to secure the services of engineers of the highest ability, and to make other arrangements that would not have been possible while we remained restricted as at present. The capital of the new company, as already explained in the circulars issued to you, will be £500,000, in 500,000 shares of £1 each, of which 350,000 will be issued as fully paid, leaving 150,000 shares in reserve to provide further capital when required. The capital of this (the Bechuanaland) company, as you are aware, is £200,000, in 200,000 shares of £1 each, all of which have been issued and are fully paid. The Southern Land Company's capital is £100,100—viz., 100,000 ordinary shares of £1, of which 20,000 are fully paid and 80,000 have 15s. per share paid up, and 100 founders' shares of £1 each, fully paid; while the capital of the United African Syndicate is £100,100, in 10,000 ordinary shares of £10 each, on which £5 has been paid, and 100 founders' shares of £1 each, fully paid. In no case is there any debenture debt. The terms upon which the several undertakings are to be acquired are set forth in Messrs. Cooper Brothers and Co.'s report; but it may be convenient if I briefly recapitulate them:—This company is to receive 200,000 fully paid shares, and £25,000 cash for distribution among its shareholders; the Southern Land Company (Limited) will receive 75,000 fully paid shares; and the United African Syndicate, under the final arrangements to which I have already referred, 55,000 fully paid shares, while the interests in Mashonaland which it is proposed to acquire from Messrs. Mosenthal, Sons, and Co., will be purchased for 20,000 fully paid shares. Thus the shareholders in this company will receive one share in the new company for every share they now hold, and a cash distribution of 2s. 6d. per share. The assets have, in all cases, been valued by us as fairly as possible, and in our opinion, the valuations placed on them are moderate ones, all parties to the amalgamation being anxious that their assets should be under, rather than over, valued, in order that the new company may start in a very favourable position for earning dividends. Each of the three companies prepared balance-sheets at May 31 last, showing their financial positions at that date, and Messrs. Cooper Brothers and Co. were asked on behalf of the three companies and Messrs. Mosenthal, to report upon these balance-sheets. Their report is in your hands. Commencing with the assets of our own company, we had on May 31, 1894, cash in hand and on loan at short notice £42,772 14s. 10d., shares and debentures in other companies valued at £138,232 17s. 8d. and properties, rights, and interests which are estimated to be worth £42,360. The Southern Land Company had cash in hand, calls in arrear, and balance of capital uncalled, which is to be called up, amounting to £26,075 19s. 9d., shares and debentures valued at £7931 17s. 1d., and farms and land valued at £42,992 3s. 2d. The assets of the United African Syndicate are valued thus: Shares and debentures in sundry companies, £37,630 11s. 11d., and properties, rights, and interests, £14,176 13s. 3d. The interests which the new company will acquire from Messrs. Mosenthal are, as already explained, those which they hold in equal shares on joint account with this company. The consideration to be received by them for their interests is precisely the same as we shall obtain for our moiety. You are all aware that Messrs. Mosenthal joined hands with us in the original expedition to Mashonaland, and, having contributed half of the cost, are, of course, entitled to a corresponding share in the resulting profits. I am sure that the acquisition of these interests will meet with your approval. It will be found that, in round figures, the aggregate amount of the assets of the three companies and Messrs. Mosenthal's interests come to £372,000, of which the cash, calls in arrear and balance of capital not called up amount to £68,800, the shares and debentures in other companies to £183,800, and the properties, rights, and other interests to £119,500; consequently, the new company, after providing £25,000 for distribution among you, will start with a substantial cash balance, and will have 150,000 shares still unissued. Moreover, if thought desirable, there would probably be little difficulty in obtaining some £70,000 to £80,000 more cash by the sale of the marketable securities. You will thus see that the financial position of the new company will be strong. Gentlemen, we recommend the scheme to your favourable consideration. We thank you for the support you have always most loyally given us during the many vicissitudes the company has passed through. In view of what your directors have done for the company in the past, I would ask you whether you have any cause to believe that they would recommend you to adopt the present proposal unless they were fully convinced that it would benefit and strengthen your position. We have satisfied ourselves of the genuineness of the enterprises proposed to be absorbed, which will bear the closest scrutiny, and we consequently feel justified in asking you to pass the resolutions which will be submitted to the meeting. We have no wish to force the proposal on you—it is for you to decide. In conclusion, I need only say that I and my colleagues will be happy to answer any questions that you may desire to put to us. I will then ask our solicitor, Mr. Hawksley, to read the agreements before the resolutions are put to you. The CHAIRMAN, in conclusion, moved the following resolutions:—

(1) That the Bechuanaland Exploration Company (Limited) be wound up voluntarily, and that the Right Honourable Edric Frederic Baron Gifford, V.C., and Francis Ignatius Ricarde-Seaver be and they are hereby appointed liquidators, for the purpose of such winding up, and that all powers vested in the said liquidators may be exercised by any one of them.

(2) That the draft agreement submitted to this meeting for the transfer of the undertaking of this company to the Bechuanaland and United African Company (Limited) be and the same is hereby approved, and that pursuant to section 161 of 25 and 26 Victoria, cap. 89, the said liquidators be and they are hereby authorised to enter into an agreement with the said company in the terms of the said draft, and to carry the same into effect, with such (if any) modifications as they may find expedient.

(3) That the said liquidators be and they are hereby authorised to exercise any of the powers authorised by sections 159, 160, 161 and 162 of 25 and 26 Victoria, cap. 89.

Mr. CAWSTON seconded the resolutions.

Mr. HOLLOWAY, who said he rose to move an amendment, asked the Chairman whether the directors had complied with a notice he had served upon them asking that certain documents, including a copy in manuscript, proof, or print of the interim report that was to have been sent out to the shareholders in the preceding month, should be produced at the meeting.

The CHAIRMAN replied that there had been no such interim report.

Mr. HOLLOWAY proceeded to read a list of the company's holdings in the various South African Companies, with a view of showing that the property of the company was much too valuable for the proposed scheme of amalgamation to be in the interests of the shareholders. These included 7000 Exploring shares, £2000 in the liquidation of the old Exploring Company, 20 ordinary £10 shares and 20 founders' shares in the Transvaal Government Iron Concession, 80,000 Bechuanaland Trading Company's shares, 30,000 deferred ditto, 125,000 shares in disputed territory, 500 1s. shares in the Automatic Gem Gold Separator, five debentures (£40 paid), half 13 gold mining claims on the Cotopaxi Reef, 25,500 Gold Fields of Mashonaland shares (fully paid), 500 £1 Rand Consolidated Deep Level shares (5s. paid), 1712 South West Africa Company £1 fully-paid shares, 16,300 Transvaal Mineral shares (£1 fully paid), and 27,750 British South Africa Company's shares. He further pointed out that since the proposal to amalgamate had been mooted the price of the company's shares had fallen in the market from 32s. to 26s., while the shares of the Southern Land had risen. "If the market be against us," he demanded, amid cheers and laughter, "who can be for us?" In conclusion, he moved as an amendment:—

That this meeting be adjourned for seven days after the interim report which was ready to be sent out in June, is in the hands of the shareholders, and until the shareholders have received a full schedule of the assets of this company, so that they may consider the value of their property.

Mr. WILLIAMS seconded the amendment.

The CHAIRMAN pointed out that, as he had already stated, the report mentioned in the amendment had no existence. For the rest the list of the company's assets given by Mr. Holloway was correct. Perhaps there was hardly a trivial modification to be made in it.

Mr. JEFFREYS was sure the meeting would desire that the proposal now submitted should be considered and disposed of without any collision of feeling between the shareholders and the board. (Hear, hear, and applause.) At the same time, there was undoubtedly a very strong feeling in the room against the scheme, and he hoped the directors would see their way to fall in with the views of the shareholders. For himself, he had given the proposal, so far as he was able, the most careful consideration, and his conclusion was very much adverse to the adoption of the agreement as it stood. A simple calculation of the assets of the combining companies, and the basis upon which it was proposed to amalgamate them, was sufficient to show that, so far as the Bechuanaland Exploration Company was concerned, the scheme was not at all fair. An additional confirmation of this was shown by the temper of the market, which, since the publication of the amalgamation scheme, had fallen for Bechuanaland Explorations and risen for Southern Land.

Mr. MOSENTHAL assured the meeting that the directors had no wish to press the scheme contrarily to the wishes of the shareholders.

The CHAIRMAN said that, in view of the evident feeling of the meeting, he would, with the consent of the shareholders, withdraw the resolutions.

The question was then put to the meeting, when a unanimous vote was given in favour of the withdrawal.

A hearty vote of thanks to the Chairman, carried by acclamation, concluded the proceedings.

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Subsequently an extraordinary general meeting of the Southern Land Company was held for the purpose of considering the question of the proposed amalgamation with the Bechuanaland Exploration Company and the United African Syndicate.

Mr, HENRY PASTEUR, who presided, said: Gentlemen, most of you have probably heard before entering this hall that the proposal which was to be placed before you to-day for an amalgamation of your interests with those of the United African Syndicate and of the Bechuanaland Exploration Company had not been accepted by the shareholders of the last-named company; so that the formation of a new company to consolidate under one concern and one management those various interests falls to the ground. I think, however, that it is a duty I owe to our shareholders, in the face of disparaging remarks which have been made elsewhere as to the value of the assets of the Southern Land Company by persons who cannot know the real position of the company, to rectify those erroneous statements. You are aware that our assets consist mainly of lands which require time to develop and increase in value; but several of our farms are situated on the line of the railway from Kimberley to the north, and others in the immediate neighbourhood of Vryburg, and all those are steadily increasing in value. The same may be said of those bought from Government, and in proof of this I may state that we have sold nine of those farms (of an acreage of over 100,000) in public auction at Vryburg within the last few months at a profit of 100 per cent. on the purchase price. Our agents write that they have more inquiries, and lead us to expect further sales shortly on the same scale of prices. We have, therefore, no reason whatsoever to wish to part with our property. I may even say that I am glad the amalgamation has fallen through—(hear, hear)—as the position of our company and the value of our lands are gradually improving, whereas there has been a shrinkage of fully £20,000 in the value of the assets of the Bechuanaland Company since they were valued on May 31; and we should have been perfectly content to remain as we are, and to wait the steady improvement which is taking place in the value of land, especially as terms are now being negotiated with the colonial authorities, and are likely to be settled before long, which will remove the difficulties hitherto existing in the search for minerals on farms in Bechuanaland. We look upon the value which is placed on our lands as a very moderate one, and one fully justified by the sales that have been made recently; and, in our opinion, the land assets of this company stand on exactly the same rank as the shares or interests in claims and mining properties of the other companies at the prices at which they have been estimated. That being the case, we had only to consider whether the proposals for amalgamation placed before us was one which we could conscientiously recommend to your adoption as being for your interests. It now remains for me to thank you for your attendance here to-day, and, whilst expressing our regret that a scheme which, in our opinion, would have strengthened the position of all three concerns has failed to be carried, I have no hesitation in expressing the confidence of your directors in the sound and promising position of the company, and in assuring you that no efforts will be spared on our part to make it a success. (Applause.)

The proceedings then terminated.

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A meeting of the shareholders of the United African Syndicate (Limited) was convened at Cannon-street Hotel, E.C., for the same day, but only one or two shareholders put in an appearance. Having waited half an hour, in accordance with the Articles of Association, and the requisite quorum not being present, the proceedings concluded.

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TWO HUNDRED sticks of giant powder exploded on Tuesday in the midst of a gang of miners working in a mine near Hazleton (Pennsylvania). Eight men, four of them married, were blown to pieces, and 150 negroes were more or less seriously injured. Mr. Pratts, the commander of the guard, was killed. The Governor sent a detachment of State militia to render assistance.

A STRIKE of fabulous richness has been made in the Pike's Peak Mine, says the *Industrial World*, Chicago. The new find consists of an 8 inch streak of decomposed quartz or talc, which averages 60 ounces of gold to the ton, being of much the same character as the other three veins found in the property. The Pike's Peak is now by far the richest gold property discovered in Cripple Creek, Colorado.

# COMPANY FINANCE.

## Reports, Balance Sheets, Dividends, &c., of Mining and other Companies.

### The Quebrada Railway, Land, and Copper Company.

The directors' report states:—The excessive and protracted rainfall exercised a disturbing influence upon a large surface area of the mountain side in which the chief mine is situated, causing great masses to slide into the river below, upsetting surface machinery, and burying tramtracks in its course, and, generally, causing great trouble and expense, besides entailing a serious loss of life. Fortunately the underground workings immediately connected with the main incline shaft did not suffer permanent injury from the flooding of the mine, and access to the various stopes on the main body of the sulphide deposit was kept almost continously under control, and is now in normal working order. On the other hand, the level through which the carbonate ores were approached was virtually destroyed, and the supply of these, so valuable for fluxing, was cut off from the furnaces for some months. This entailed a serious increase in the production cost of regulus, owing to the necessity of using barren material as flux. A new adit was immediately commenced to restore access to the carbonate ores, and these are now being produced on a liberal scale, thus obviating the use of barren flux. The very low price of copper makes it difficult to earn a profit at present, nevertheless, the board is not without hope that better results may shortly be looked for. The output of fine copper fell short of the previous year's production by about 10 per cent., the figures being 2759 tons against 3065 tons. The actual quantity of ore mined was practically the same both years, but the copper content was about half a unit lower per ton. The latest reports indicate no improvement in the quality of the ore, but every effort is being made, by prospecting under the instructions of the technical adviser, to obtain mineral of a higher grade. With the exception of the mines section, the railway was comparatively free from interruption by rains, and is now in fair running condition throughout. The repairs to the Barquisimeto track were completed in December, and the line was reopened for through traffic in the middle of that month. Since that period the local traffic receipts from both roads have improved in a marked manner, the revenue from January to May last being £66,310, against £50,269 in the corresponding period of 1891. The traffic in the spring of 1892 was so greatly affected by the Revolution, and in 1893 by the broken condition of the line that the figures are regarded as useless for purposes of comparison. After crediting the railway with 20s. per ton for carriage of mineral and coke, a profit of £9568 is shown, which would have been much larger had not so considerable a loss of revenue occurred owing to the Barquisimeto section being under repairs until the last month of the year. The working agreement with the Barquisimeto Railway Company is being provisionally renewed with some slight alterations, until 31st December, 1895, in order to afford time for fully discussing future arrangements. The commission to Venezuela, consisting of Colonel R. H. Lloyd Anstruther, Mr. N. G. Burch, and Mr. Meik, C.E., an engineer selected for the purpose by Messrs. Matheson and Co., appointed to make a thorough investigation into the company's affairs, and with authority to introduce whatever measures might be found necessary to arrest the loss which was being incurred, left England in October and returned in March last. The inquiries extended to every branch of the business, and considerable and important economies and modifications were introduced, and others recommended, to the latter of which the directors are now endeavouring to give effect. From the information which the Commission was able to gather in Venezuela, and from later advices, the board is led to hope that the Government will shortly make some adequate effort to settle the claim for the damages consequent on the revolution in 1892. The prices realised per ton for the copper contents of the mineral produced were £36 5s. for export ore, against £38 8s. 10d. in 1892; and £37 0s. 7½d. for regulus, against £41 7s. 5d.; the average being £36 17s. 6d., against £40 5s. 10d. The lower rates realised were due to the reduced market price of copper. The cash deficiency at the end of the year was £96,760, and as the issue of new capital was not practicable under the circumstances, the company's commercial agents, Messrs. Matheson and Co., agreed to continue to find funds to carry the company through its immediate difficulties in consideration of their being given a charge upon specific portions of the property in Venezuela, taking precedence of the floating charge held by the holders of the debenture stock. The directors repeat that the earliest opportunity should be taken to re-arrange the capital account, and to place the finances on a firm and sound basis. When this is undertaken a sufficient amount of working capital, say £50,000, should be provided to cover the standing outlay for stores and unrealised stocks of mineral.

### The City and Suburban Gold Mining Company

The following circular, dated Pietermaritzburg, Natal, 20th June, has been issued:—I beg to inform you that the directors of this company have decided not to declare any dividend for the quarter ending 29th June, 1894. Owing to the large excess of expenditure (upon the extensive new works and new machinery and necessary mine development) over the estimate, the profits of the company have had to be used for capital purposes. It was hoped that profit and loss account would have been recouped by the sale of stands, which was expected to be arranged for last month, but in consequence of the non-completion of arrangements with the Government of the South African Republic, the sale has been unavoidably delayed. The manager reports that the new 80 stamp battery, &c., will be completed and ready for work at the end of the present month, and the directors anticipate that the profits resulting from the company's operations after 1st July, 1894, will enable them in due course to resume payment of dividends. From the report for May:—Profit for the month: On mine account, £465 2s. 5d.; on estate and sundry revenue, £29 4s. 8d. Loss on retreatment account, £129 0s. 1d.—Expenditure on capital account: Mine development, £6834 14s. 6d.; buildings, plant and machinery, permanent works, &c., £15,285 10s. 9d. The south reef has been extended on the third level 164 feet 3 inches, exposing 3462 tons. The average width of the reef is 31·44 inches, and the average value by fire assay 34·82 dwts. On the fourth level the south reef has been extended 249 feet 6 inches, exposing 5757 tons. The average width of the reef is 36·09 inches, and the average value by fire assay 42·90 dwts. On the fifth level the south reef has been extended 154 feet 1 inch, exposing 4171 tons. The average width of the reef is 35·75 inches, and the average value by fire assay 18·40 dwts. The main reef leader has been extended on the second level 28 feet, exposing 484 tons. The average width of the reef is 30 inches, and the average value by fire assay is 53 dwts. On the third level the main reef leader has been extended 377 feet 6 inches, exposing 5475 tons. The average width of the reef is 21·96 inches, and the average value by fire assay 25·09 dwts. On the fourth level the main reef leader has been extended 210 feet 9 inches, exposing 3159 tons. The average width of the reef is 22·03 inches, and the average value by fire assay 14·77 dwts. On the fifth level the main reef leader has been extended 157 feet 10 inches, exposing 2650 tons. The average width of the reef is 25 inches, and the average value by fire assay is 19·20 dwts. During the month 5892 tons were mined—3555 tons from south reef and 2337 tons from main reef leader. The returns of gold from both mill and cyanide works have fallen unusually low owing to a temporary reduction in the value of the ore mined; and as regards the cyanide works, from the fact that, owing to the large proportion of slimes worked from the tailing pits, the extraction was very unsatisfactory.

### Burma Ruby Mines.

The report of the Burma Ruby Mines (Limited) for the year ending 28th February states that the result of the 12 months' working was disappointing as to the value of rubies found, but much time and money were spent in the development of adits, which should during the next season recoup the company for the outlay upon them. The work has been carried on with much energy during the current year, the number of loads washed to 1st July amounting to 19,515, as compared with 14,333 and 5765, the numbers for the corresponding six months of 1893 and 1892. No deduction has been made for depreciation of machinery, and no share of the concession has been written off, but a sum of £2246 has been charged to expenditure account chiefly for wooden buildings fallen into decay. In compliance with the wishes of the shareholders, expressed at the last general meeting, Major A. Patton-Bethune, a director, was deputed by the board to inspect and report on the mines. He arrived there in November, and remained about four months. He, subsequently, visited Calcutta and Simla to personally urge on the Government the views of the board on reduction of rent, suspension of arrears, and extension of the term of lease. The Government of India have declared their willingness to grant a new lease on the following terms, subject to the sanction of the Secretary of State:—(a) A fresh lease to run from the 1st May, 1894, for seven years; (b) a rent of three lakhs, payable in half-yearly instalments; (c) the first charge on the net income of the company then to be a dividend of 5 per cent. on the paid-up capital; (d) the second charge to be the six lakhs of rupees due to Government, but in no year the demand to be more than the amount paid under (b); (e) after liquidation of (d) the company's income, less (b) and (c) to be divided between the Government, and the company in the proportion of one-fourth to the former and three-fourths to the latter; (f) after the expiry of the term (seven years) of the lease, the Government to be free to make what other arrangements they may deem expedient, provided that if the Government decide to lease out the mines the company will have a preferential claim to the lease.

### La Yesca Gold and Silver Mines.

The following is from a circular recently issued to the shareholders:—Captain Michell reports that a delay occurred in consequence of a break in the tunnel near the entrance, where it was thought no repairs were required. New timbering was necessary, but the men have made excellent progress, and the work is in a very forward state. The tunnel is now practically in splendid condition. Work on the mill house and machinery is also making satisfactory progress. Captain Michell concludes with regard to the end of the tunnel: "I consider the prospects here to be excellent. At this moment water is issuing freely from the face of the drift, which cannot be regarded other than of the highest importance for the yield of mineral. When the vein is reached, the extraction will be very cheaply performed, and, considering the high backs, there is not a doubt but that a large quantity of gold and silver ores will be raised therefrom." The directors hope to hear in Captain Michell's next report that the work of driving on the Wills vein, and also in the end of the tunnel to the gold-bearing vein, has been resumed.

### Victory (Charters Towers) Gold Mining Company.

The directors, in their half-yearly report for the period ended April 30 last, state that the yield from the mine during the half year was as follows:—No. 1 shaft, 778 tons, 768 ounces gold, valued at £2663; No. 2 shaft, 4035 tons, 5365 ounces gold, valued at £18,731; total, 4813 tons, 6133 ounces gold, valued at £21,394. In addition to the above, concentrates, tailings, &c., sold realised £1577. One dividend of 6d. per share, equal to £5000, was paid March 29 last. One of the directors (Dr. Anderson) and the secretary made a visit to the mine, and found everything in effective and capable working order. It is in contemplation to work the reef left by the Brilliant, Worcester, and Victory Company on your eastern boundary, and negotiations for obtaining permission for the use of that company's shaft are in progress. Receipts for the half year from all sources, inclusive of credit balance brought forward, £1792, amount to £24,780, and expenditure to £22,233, leaving available to carry forward £2546.

### East Rand Proprietary Mines.

The accounts for the year to April 30 show an expenditure of £17,199, including £4564 on seven boreholes and £3803 on licenses; while the income was £628, leaving a debit balance of £16,571. The company has £25,490 of cash, and £8000 is due from sundry debtors; while there are creditors for £2835. The report contains much information with regard to the progress of the subsidiary companies' affairs.

### Pigg's Peak Development.

We are informed that the Pigg's Peak Development Company, (Limited) has taken on lease for two years the concession of the Havelock Gold Mining Company (Limited), comprising 28,000 acres in Swaziland, with mines and machinery, with an option of purchase during the lease, and that the Pigg's Peak Company proposes to work one of the mines there, near the Devil's Reef, at once.

### Rand Mines (Limited).

The dispute between the Rand Mines (Limited) and the United Langlaagte Company as to the title of 116 claims held by the former has been settled by the payment of £25,750 to the latter company. In return for this payment the Rand Mines (Limited) secures more than a title, for it gets the freeholder of 372 claims, including those in dispute. The revenue accruing to the Rand Mines, as freeholder of the ground in question, is stated to be equal to 6 per cent. on the purchase money.

— Mr. George Hopkins, C.E., Mr. Thomas Mills, and Mr. Ross Robinson have been appointed London directors of the MILLS DAY DAWN COMPANY, and the London register is now open at Woolpack-buildings, 3 and 5, Gracechurch-street, for the registration of all shares authorised by the general board of directors for that purpose.

— The accounts of the BUFFELSDOORN GOLD MINING COMPANY for the half year to February 28 last show a net profit of £15,364, the mill being at work for four months and a half. During the same period the capital expenditure was £14,398. The directors "hope that they may be able at an early date to declare a dividend."

— The directors of the PACCHA AND JAZPAMPA NITRATE COMPANY (LIMITED) have declared an interim dividend on account of the year 1894 at the rate of 10 per cent. per annum for the six months ended June 30, payable on August 1.

— The OURO PRETO GOLD MINES OF BRAZIL (LIMITED) has sold the gold obtained in the month of May, which realised £4361 16s.

# REVIEWS.

## THE POLITICS OF EUROPE.

*England and the Continental Powers.* A consideration of some questions of Foreign Policy. By John Keighley Lund. (Swan, Sonnenschein, and Co., London, 1894.)

None, of however acute a critical faculty, will be able to discern in this closely-written and clearly-reasoned little treatise upon the relations of the Continental powers the smallest traces of the genius and spirit to which we owe that over-imaginative but ever-charming tale of other worlds—"Thalika"—and the sweetly-musical sonnet to the bul-bub. Amid the flood of aimless and discursive literature pouring out of the presses of to-day, it is a pleasure to meet with an author who sets himself a specific and definite object, and by every paragraph and sentence carries us some distance towards the attainment of it. This object, as we understand it, is twofold. Mr. Lund would first awaken the public to a full sense of the importance of foreign politics, and then, in brief, terse style, sketch out the relations subsisting at present among the Continental powers, and put into a similarly condensed form, the leading principles upon which would depend any future modifications of them. As to the feasibility of the first we are not sanguine. To mining men and colonists the appeal will come with a great force. Larger and broader views of the world's progress are forced upon them by the peculiarities of their calling. But how hope to broaden and enlarge the vision of the average elector, who even in matters of domestic policy has not yet altogether learned to correct that narrowness of sight which is the birthright of each individual in an insularly-situated nation? The interest, or lack of interest, evinced in these matters is shown by the fact that the daily papers, which, if they ventured upon similar errors in other directions, would raise about themselves a deafening storm of ridicule, come serenely out with geographical and political blunders of appalling frequency and magnitude. Foreign fleets are described as anchoring off inland towns, while sea-ports are landed high and dry at several hundred miles distance from the coast. With the public conscience, so to speak, at such a low ebb, it would seem almost a hopeless business to think of anything like a general awakening, but it is well that the attempt should be made—certainly if in the style Mr. Lund has adopted. A modest, sober-minded attempt it is—a passionless presentment of the facts, undistorted by any party considerations, unless, indeed, in the days of the "Little England Party," a full note of patriotism and a deep attachment to the dignity and greatness of the British Empire may be given such a name. Wide reading, the faculties of penetration, and of assimilation are abundantly evidenced in every page of the book. Indeed, no writer without a high development of these powers would be competent to write upon what is necessarily an ever fluctuating and, in a measure at least, indeterminate branch of our knowledge. What Mr. Lund has to say of the European questions to-day may in 20 years' time have lost all but an historical value, but his deeper generalisations upon the principles of international movement must keep their authority until the Continent of Europe has passed into a different period of the world's history. Whatever lies in the future, the reader may at least be sure that for the present our author is upon safe and solid ground. To us, who are apt to judge of an author's mind from his work, it is difficult to conceive how an intellect of Mr. Lund's peculiar cast came to concern itself with such a subject. Speculations as to the limits of the knowable and thing-in-itselfness would seem to be the directions in which, as an instrument—at least—of appreciation, and even of origination, the mind reflected before us would especially excel. A synthetic philosophy—a constructive scheme of the universe lies far beyond all questions of mere international relationship, but unless we grossly misconceive the myriad indications of this treatise, our author would be more congenially conditioned in the higher realm than in the lower. Our purpose, however, is not to lecture Mr. Lund as to the use he may care to make of his mind. "This"—we can imagine him saying—"is a free country, and a man's mind is his own." Perhaps, too, had we before us a few details of the writer's biography, some sojourn in that Arcadia of modern life to the south of the Seine, or a month or two in some cosmopolitan city of Mid-Europe, might supply all the explanation of this curious bias of mind. Our purpose is, however, to speak of the little book before us, and we commend it without hesitation. We say that the author could achieve something more permanent in a higher realm of thought; not that on this lower plane he has not been successful. With this view, courteously expressed, we, in putting down the book, may be allowed to hope that the Russian Question and the Korean difficulty will not monopolise Mr. Lund's attention to the entire exclusion of the Cartesian system and Kant's categories.

## THE WAY OUT OF LABOUR DIFFICULTIES.

*Conciliation and Arbitration in Labour Disputes*; a Historical Sketch and Brief Statement of the Present Position of the Question at Home and Abroad. By J. Stephen Jeans, M.R.I., F.S.S., author of "England's Supremacy," and late secretary of the Iron and Steel Institute. (London: Crosby Lockwood and Son, 7, Stationers' Hall Court, Ludgate Hill, 1894.)

With the remembrance of last year's great strike still fresh, and with the consciousness that one of an even more disturbing nature is proceeding in America, the industrial mind is not likely to under-rate the importance of the various proposals under consideration for the settlement of labour disputes. Mr. J. Stephen Jeans has embodied in a book his long experience of the subject, concerning which the author remarks "that much ignorance still prevails as to the methods and issues involved." The plan of the volume is an admirable one. It is mainly historical and suggestive. To throw the light of the experience accumulated in the past in such a way as to make it serve for the future is the obvious purpose of the work, and the writer with his wide knowledge of the question and his keen penetration is peculiarly fitted to undertake it. It is the work of a man accustomed to look steadily at the difficulty from all points of view, and such is Mr. Jeans. The major portion of the book—the first section of 17 chapters—is devoted to the question as it affects Great Britain, and 14 of these chapters are almost wholly an account of the experimental application of conciliation, arbitration, co-operative, and sliding scale principles. "It is the purpose of these pages," remarks the writer, "to focus and chrystallise the experience of the past and the obvious requirements of the present in respect of this new mode of dealing with industrial differences." Thus the materials for a personal judgment are placed ready to the hand of the individual political economist, without bias or predeliction in any one direction. The narrative of the past has given occasion for a pungent commentary upon the various experiments made, but everywhere there is a broad and impartial exercise of the judgment, remarkable when considered in relation to the partizanship so essentially bound up with labour matters. Not the least interesting and valuable passage in the earlier part of the work is the account given of the legislative proposals still under consideration. Here, more than anywhere else, is the immense advantage of a wide

knowledge of the past apparent, and it is easy to see that a man who is not an expert can, without difficulty, make things worse. In the next section the author goes further a-field to illustrate the question through what has happened in foreign countries. The United States—where the evils of strikes are now prominently manifest—Germany, and France, pass under his scrutiny, and are made to teach valuable lessons. There is an appendix to the volume, where a number of schemes for conciliation and arbitration are set out in detail. Undoubtedly the book is a valuable addition to the—at present—rather scanty literature of the subject.

### LEGAL LITERATURE.

*The Law of Principal and Agent.* By Eric Blackwood Wright, B.A., LL.B., of the Middle Temple, Barrister-at-Law. (London: Stevens and Sons, Limited).

Mr. Wright's object in presenting this work to the profession and the public is to provide a handy text book on the important subject of "Principal and Agent," and he finds further excuse for seeming to compete with the works of Mr. Justice Story and Mr. Evans on the same subject in the fact that no less than four Acts of Parliament having material bearing on this branch of the law—namely, the Factors Act of 1889, the Gaming Act of 1892, the Married Women's Property Act of 1893, and, lastly, the Sale of Goods Act of last year, codifying the law as to stoppage *in transitu* have all become law since the last edition of either of the above-named authors. Accordingly, in the course of the text we find these Acts (which appear printed in the appendix), so far as they affect the subject matter of the work, carefully and cleverly discussed, and the recent decisons duly noted. The learned author being a member of the staff of law reporters of the "Times Reports," is naturally jealous of their reputation, and justly complains in his preface that authors of text books too commonly omit to cite authoritative decisions, which frequently appear in those reports only. Naturally, therefore, Mr. Wright supplies his readers with such references. All the important recent decisions affecting the liability and responsibilities of commission agents appear to have been collated with considerable care. Several cases bearing upon the remuneration of commission agents and house agents appear collected together for the first time in any work on principal and agent. Our author also brings into due prominence the recent authoritative decisions, which render an agent liable to account to his principal for the amount of any bribe he may receive, and which show that not only has the principal a remedy against the agent, but also against the person who has paid the bribe. Speaking generally, the arrangement of the subjects of the chapters is good. The volume is of handy size. The modern practice of giving the dates of the decisions cited has been followed, a reference being given in a "Table of Cases," to the various reports in which they will be found. The principles of the cases cited are stated tersely and clearly, and a good index makes accessible to the lawyer and layman the solution of the many difficult questions which arise between the principal and the agent in the everyday avocations of ordinary commercial life.

# NEWS FROM THE COLLIERIES.

### NOTES ON THE INDUSTRY.—STATISTICS AND REFERENCES.

IN answer to Mr. D. A. Thomas, in the House of Commons on Tuesday, Mr. Asquith said—No recent resolutions from colliery workmen at Merthyr and elsewhere have been received in favour of the appointment of practical colliers as sub-assistant inspectors of mines. A new assistant inspector of mines has just been appointed for South Wales, and two more of practical experience as workmen are about to be appointed assistant inspectors for quarries and metalliferous mines. This, I am afraid, is as far as I can at present go in the direction suggested by my hon. friend.

A PECULIAR strike has occurred at the Black Diamond coal plant near Pittsburg, Kansas, says the *Industrial World*, Chicago. Superintendent Wilmer was so well satisfied with the work of his men that he posted a notice saying that he would advance their wages two cents on the box. For some reason the miners, who had been apparently contented before, became suddenly avaricious and demanded a further increase of three cents—five cents higher than the old price.

A MASS meeting of the Cannock Chase miners was held on Tuesday at Cannock, over 5000 men being present, to consider the wages question. A resolution was adopted leaving the matter in the hands of the leaders for further negotiations and settlement. The Cumberland coalowners have declined owing to the state of trade to accede to the men's request for an advance in wages equivalent to the amount (between 10 and 12 per cent.) lost in 1892.

IN the House of Commons on Thursday, Mr. John Ellis asked the Secretary of State for the Home Department whether, having regard to the disasters and loss of life which have taken place in coal mines through the presence of coal dust and the dangerous use therein of shot-firing, the Government would be prepared to press forward a measure next Session carrying out the recommendation of the Royal Commission on Coal Dust, in their report of June 16, 1894, that the Secretary of State should be given further powers to limit and prohibit the use of gunpowder in fiery, dry, or dusty mines.—Mr. Asquith: I hope next Session to introduce a Bill dealing with the matters discussed in the report, especially with regard to shot-firing and coal dust.

AT a meeting of the standing committee of the Fife Miners' Association, on Thursday, reports were submitted regarding the executive board's proposal to distribute strike pay to non-union men. The reports showed that the members were unanimous in approving such proposed distribution. In some Ayrshire districts the colliers on strike threaten to return to work next week if the strike pay is not increased to 7s. a week, which is double the present allowance. Mr. Small, of the Miners' Federation, left Glasgow on Thursday for South Wales to ask for monetary help for the Scotch miners. There is practically no Scotch coal market, the demand having entirely ceased. The coalmasters are confident that the strike cannot last much longer, and some Ayrshire owners are negotiating for a renewal of contracts.

THE Government of India lately suggested that the use of Umaria coal might, with advantage, be extended to the Khandwa-Ajmere section of the Rajputana-Malwa Railway, says *Indian Engineering*. The railway officers, however, do not take the same view of the matter, as in the end they think that the use of Umaria coal on that section would be dearer than that of English coal, which can be delivered at Khandwa at Rs.25.8 per ton.

FROM certain experiments lately carried on on the Bombay, Baroda, and Central India Railway, the company's officers estimate the relative consumption of different descriptions of coal as follows:—Barakur, 1·253; Sanctoria, 1·292; Japanese, 1·430; Powell Duffryn, 1·000.

# MINING IN CORNWALL AND DEVON:

### NOTES ON WESTERN MINING, EDITORIAL AND OTHERWISE.

DURING the past week there has been a trifle more activity in the share market, and a few of the low-priced shares have been dealt in rather freely. This, in most instances, is due to an improved appearance of things on the properties, but with the continued fall in tin only fractional advances can be expected. Shares such as Wheal Agars, South Croftys, and Cook's Kitchens at the present moment command merely nominal prices, and there are mines in which, in the past, speculation has been very free, and with even smaller chances of success than exist at the present moment shares have commanded ten and even twenty times the prices now quoted for them. In Wheal Agar especially things are looking very bright, and a substantial advance would probably be the result of an even moderate demand. The committee have recently met on the mine and concluded arrangements with the Tuckingmill Company for the more expeditious and economical developments of the bottom of the mine. The lode in the bottom is looking remarkably well, and with the facilities for exploring which they will now have by this contract, they ought very soon to be in a position to materially increase their returns. A few people appeared to imagine a week or two ago that the large shareholders in Wheal Agar were getting tired of the speculation, and there were rumours of a possible suspension of operations or reconstruction. This was, however, generally discredited at the time, and is now amply disproved by the action of the committee in inviting tenders for a 12 months' supply of coal. The tenders were opened last week, and the lowest, that of Messrs. Radford and Co., was recommended to the London committee for approval.

AT Levant meeting, contrary to general expectation, a dividend of 2s. 6d. was declared out of a profit of £320, which leaves a balance of a few pounds to carry forward to the reserve fund. It was hardly thought that Levant would have made any profit at all in view of the low price of mineral, but the quantity of both tin and copper which has been disposed of in the four months is, according to Major White, the purser, the largest ever raised in the St. Just district in the same time, and the adventurers had the satisfaction of receiving the largest dividend paid by any Cornish mine during the present round of meetings. Copper is a more important item in Levant than in any of the Cornish mines, and 473 tons have been raised and sold this quarter. It is strange that the highest valuation placed on any point is £30 per fathom on the 302, for copper. We question the wisdom of declaring a dividend at all, in view of the fact that the mine has to pay bankers' charges, but it cannot be said that the action of the adventurers is difficult to understand under present circumstances, especially in view of the fact that the £300 has been fairly earned, and that the lord has benefitted to the extent of nearly £500. The prospects of the mine are remarkably good, and the agents expect to raise about the same quantity of mineral in the next four months as in the past; so that the dividend next time is simply a question of the price they are able to obtain for the mineral. It is satisfactory to see that Levant is not behind in the matter of machinery, and that the executive has not displayed that conservatism with regard to appliances which is too often found in districts further east. The latest addition to the machinery is a battery of 20 heads of Californian stamps, which will be a valuable auxiliary to the present stamping power.

WE notice that Mr. William Henry Rule, of Camborne, indulged in some unjustifiable reckless abuse in the course of an after-dinner speech. We are rather surprised that respectable newspapers, should think it worth while to give publicity to his diatribes, and we merely mention the matter at all for the purpose of giving the assurance that his attacks upon leading mining men in the county are founded upon nothing more substantial than the extraordinary figments of his own vivid imagination.

WHEAL BASSET meeting will be held on Tuesday, when the shareholders will be asked to pay a call of 4s. 6d. to meet a loss of £1200 on the quarter. The returns of tin show a falling off of about 10 tons, in consequence of the return of less stuff, which is attributable to the series of hindrances caused by numerous minor breakages in the machinery. There is a quantity of stuff underground all broken and ready to be taken away, so that, unless anything unforeseen happens, they ought to be in a much better position at the end of the next 13 weeks. We understand that no settlement has yet been arrived at between Wheal Basset and South Frances with regard to the water difficulty, and the joint meeting of the two committees has not yet been held. It is a matter which ought not be lost sight of, but should be settled long before the winter months. South Frances has suffered so much from the water difficulty herself that she ought to treat her neighbour with all the more consideration.

THERE seems to be quite an epidemic of encroachments. The latest case is reported between West Kitty and Wheal Kitty, the former alleging that its neighbour has gone beyond the boundary. It is to be hoped the matter will be settled outside the law courts.

SEVERAL important mines have recently been located at Batuc, in the Ures district, Sonora, Mexico. The chief are El Reliz, La Cruz, La Fortuna, Zaragoza, and La Gloria.

THE *Labour Gazette* states that the number of mines reported during June as opened or reopened was 34, and as discontinued or abandoned 9, the numbers in the previous month being 28 and 10 respectively. Of the mines opened or reopened, 31 were collieries, two iron mines, and one slate. The mines abandoned were all collieries. Seven of the 31 new collieries are in Yorkshire, six in Staffordshire, four in Derbyshire, and three each in Durham and Lancashire.

IN the House of Commons, on Tuesday, Mr. S. Smith asked the Home Secretary whether he was aware that a piece of common land in the parish of Halkyn, Flintshire, known as Halkyn Mountains, was honeycombed with quarries, some of which were worked, but most of which were disused, and that none of the quarries, whether worked or disused, were fenced; and whether, seeing that the mountain was opened and covered with footpaths, and that these quarries were dangerous to life, Her Majesty's Government would exercise some pressure on the Department of Woods and Forests so that some protection might be given to life and limb on Halkyn Mountain without delay.—Mr. Asquith: The report I have received from the chief inspector of metalliferous mines fully bears out the statement contained in the first paragraph of the question. I have communicated with the Office of Woods, and learn from them that steps will be taken to enforce the covenants as to fencing.

# LATEST FROM THE MINES.

### CABLEGRAMS AND TELEGRAMS.

ASIA MINOR.—Production to June 30:—Lidjessy Mines, 2883 tons crude ore crushed, yielding 179 tons rich silver lead. Gemin Bel Mines produced 50 tons.

BAYLEY'S REWARD.—The following cablegram, dated 18th inst., has been received from Melbourne by the London office:—"Week's run, 700 ounces; 70 tons. Mine is looking well. Dividend 4d. per share, payable 28th inst. Transfer books close 21st to 28th inst., both days inclusive."

DARIEN GOLD.—The directors have received a cablegram from the manager, saying that the drainage adit at the south mine is now complete and the mine free from water. Prospecting operations have been commenced.

ELKHORN.—Bullion produced in the mill for the week ending July 14, 9700 ounces.

FRONTINO AND BOLIVIA.—Advices from the mines for the month of May state:—"Produce value, £8100; cost £5140; estimated excess of returns, £2960."

GOLDEN GATE.—The manager writes, under date June 2:—"The number of tribute parties now working is 22, and the net tribute percentage for the fortnight was £88 17s. 7d. From the present appearances we shall be able to pay all mine expenses, including the cost of the diamond drill bore, out of the percentage we are receiving from the tributes."

JAY HAWK AND LONE PINE CONSOLIDATED.—A telegram from the manager states:—"The estimated return for the past week is 7900 ounces. The winze sinking below the 1500 level is in good ore. At Bonanza Mine we are stoping in high-grade ore."

KABOONGA.—The following cablegram has been received from the manager at the mine:—"Borings in south-east drive further declines 5 feet, south-west drive suspended at the present time."

LAS CABESSES MANGANESE.—Production for the week ending July 14 (five working days—operations suspended for one day on account of national holiday) 428 tons, or a daily average of 85 tons.

MALLINA GOLD.—The following cable has been received by the secretary, from the manager at the mine, dated July 12:—"Have struck a pocket of very rich ore, flat reef. The mines promise well."

MOUNT ZEEHAN (Tasmania).—The following telegram has been received, dated Hobart, 17th inst.:—"Have shipped per s.s. *Salier* 80 tons of concentrates, containing about 60 tons of lead and 6000 ounces silver."

MYSORE WEST AND MYSORE-WYNAAD.—The company's representative in India reports by telegraph, under date July 19, as follows:—"At the several points for the last fortnight average assay of ore is 2 ounces 16 dwts. per ton."

OURO PRETO.—The directors received a cablegram from the mines, giving the return for the month of June as follows:—"3039 tons produced 37,560 grammes = 1208 ounces."

PHILIPPINES MINERAL SYNDICATE.—The directors have been informed by cable that crushing will commence within the next four weeks.

POORMAN CONSOLIDATED MINES.—The following cablegram has been received from the secretary of the company, at New Jersey:—"In consequence of stoppage of mails in the west, we have been unable to send you further particulars before. We are sending by this mail letter and report received from mines. The mill was wholly destroyed with contents; it was not insured; only the retorted bullion from June clean-up saved; concentrates buried in the ruins. The board has resolved to at once invite subscriptions, at par, for 48,000 working capital shares to rebuild mill with capacity of 70 tons per diem. Cause of fire still unknown. Have sent full particulars by letter."

QUEEN'S BIRTHDAY UNITED.—The following cable has been received from Mr. W. T. Hansford, the company's local secretary at Dunolly, dated 19th inst.: "Queen's Birthday Mine: We have crushed 100 tons centre shaft 300 feet level, yield 25 ounces gold; and 100 tons from 400 feet level for a yield of 70 ounces gold. The developments of the mine fully justify the expectations which have been formed." N.B.—The directors are also expecting advice of a crushing of rich stone from the Belgium reef (assay 2 ounces gold per ton) and have received advice by mail of a visit of inspection paid to the company's property in June last by the Minister and Secretary of Mines of the Colony of Victoria, who expressed themselves very gratified and impressed with the company's future prospects and magnitude of the mines and works.

QUEENSLAND SMELTING.—The manager cables under date July 16:—"Have now ready for shipment bullion to the value of £10,000 per s.s. *Dorunda*."

ROBINSON.—The following cable has been received from the head office at Johannesburg:—"Profit for the month of June £29,750."

SAN SALVADOR SPANISH IRON ORE.—The s.s. *Consent* sailed from Santander on the 12th inst. with a cargo of 1780 tons of this company's ore for Middlesbro'.

SPRINGDALE.—The secretary in Denver, under date July 3, writes: Mr. Davis was in town yesterday, and transmitted the monthly cable report to Mr. Pearse: "Work at the Mountain Lion during the first days of June was somewhat retarded by the effects of the storm, but all is in order now, and Mr. Davis pronounces the mine in its various workings far and away ahead of anything it has shown in the past.

SUNBURST.—The manager reports, under date June 2:—"We have eight tribute parties now working in the mine, and the tribute percentage received during the fortnight amounts to £96 8s. 1d., one small crushing having given as much as 4¼ ounces of gold to the ton."

VICTORIA GOLD MINING ASSOCIATION (Charters Towers).—A cablegram announces the fortnight's crushing as follows:—"360 tons yielded 595 ounces gold."

WENTWORTH EXTENSION.—Report dated June 9: East crosscut advanced 10 feet, total length, 150 feet, cutting through diorite with bands of serpentine. West crosscut extended 7 feet, total length, 86 feet; face in hard blasting rock.

ZEEHAN-MONTANA.—The following telegram has been received, dated Hobart, 17th inst.:—"Have shipped per s.s. *Salier* 110 tons first class ore, containing about 77 tons of lead and 11,550 ounces of silver."

A GOOD strike has been made in the eastern section of the George Goch Mine, a rich leader, from 4 inches to 6 inches wide, being cut on the footwall of the main reef in the abandoned workings on the first level.

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## CONTENTS

Of this Number of "The Mining Journal, Railway and Commercial Gazette," July 21, 1894.

NEW PATENTS ... 785
CONTRACTS OPEN ... 785
OUR INQUIRY COLUMN ... 785
SPECIAL CORRESPONDENCE: Colonial and Foreign.
Our Paris Letter ... 786
ROYAL SOCIETY OF SOUTH AUSTRALIA ... 786
A NEW METHOD OF SMELTING IRON PYRITES, &c. ... 787
THE BAUXITES ... 788
MEETINGS OF MINING COMPANIES—
Appantoo Gold Mining Company (Limited) ... 788
Newport Abercarn; Sutherland Reef ... 789
Holcomb Valley; Levant; Mysore Reefs Gold ... 790
The Bechuanaland Exploration Company (Limited) ... 791
COMPANY FINANCE ... 792
REVIEWS ... 792
NEWS FROM THE COLLIERIES ... 793
MINING IN CORNWALL AND DEVON ... 793
LATEST FROM THE MINES: Cablegrams and Telegrams ... 793
LEADING ARTICLES—
Further Causes of Failure in Mines; Philippines Mineral Syndicate 794
NOTES AND COMMENTS ... 795
FORTHCOMING MEETINGS ... 796
OUR CITY ARTICLE ... 796
THE EDITOR'S LETTER BOX ... 796
THE ZINC ORE DEPOSITS OF SOUTH-WESTERN NEW MEXICO ... 797
THE METAL MARKETS—
The London Metal Market ... 797
WEEKLY DIVIDENDS ... 797
"THE MINING JOURNAL" SHARE LIST ... 798-799
PROVINCIAL SHARE MARKETS ... 799
REPORTS FROM THE MINES ... 800
THE NEW MINING RULES OF INDIA ... 803
TIN TICKETING ... 803
GEOLOGY AND MINERALOGY OF SHASTA COUNTY ... 804
ADVERTISEMENTS—(*See Index to Trade Advertisements, p. 782*).

**LONDON: JULY 21, 1894.**

## FURTHER CAUSES OF FAILURE IN MINES.

LAST week, it will be remembered, we dealt with some causes that brought about failure in mines. Space did not permit us to deal with the subject fully, and, therefore, we resume the subject in the present leading article. The words "working capital" lead on to another common cause of failure in mining undertakings, viz., the overburdening of the mine with capital. And yet it is upon the amount of money spent upon the development of the mine, and the erection of suitable machinery that the success of the whole concern depends. It is, perhaps, impossible in the existing state of business to limit the whole capital to the amount required for working and practical purposes, as money must be appropriated to the purchase of the property, and the expenses of forming the company. The amount applied for working should, however, occupy the premier position, and not be put into the background, as is often the case, with the excuse that when the works are started it will be easy to raise money for their completion by means of mortgage debentures or other well-known devices. Experience, we believe, teaches that it is, on the contrary, most difficult to get the shareholders to did their hands deeper into their pockets, and often rather than do so th[illegible]ow the whole thing to go to ruin. The moral is that the money set aside originally should be amply sufficient to put the concern on a paying footing, otherwise there is a great risk that within a short period another mine will be added to the list of failures. An overwhelming capital has another serious drawback, and that is that it take a large amount of money to pay a reasonable rate of interest upon it. Many a mine which would pay upon, say, £10,000, a dividend which would satisfy its shareholders, would utterly fail to do so upon £50,000, a sum to which its capital could easily rise in the process of formation. The great endeavour should, therefore, be to secure sufficient cash for the proper development of the mine, and to keep down the total capital to a point at which, with moderate success, a reasonable dividend can be fairly earned. We have already treated in various articles of the mischief arising from defective management, which, of itself, is a fruitful source of failure. Over and over again have we been assured by men interested in mining matters that they hesitated to take up sound business not from the difficulty of securing a good property, but from the greater one of obtaining the services of a manager upon whose skill and honesty they could absolutely rely. This applies to private mining firms more especially, for, unfortunately, in many public companies the manager is chosen not for his abilities for the post, but through private influence with members of the board, or because he has invested a certain amount in the business in order to secure the post. As we have already insisted upon the necessity of a wise and careful choice in this essential matter, we do not propose to renew our arguments, but will simply insist upon the necessity of securing the best man for the post and of paying him a salary, and allotting him a share in the success of the mine, which will bind up his interests with those of the shareholders.

In many cases the manager is more competent from his training to direct the board on technical questions than they are to govern him, unless, indeed, they are advised in their deliberations by a consulting mining engineer, so that we are brought face to face with the well-known idea that those who are in the same boat should pull well together, and unless this is the case with all the officials connected with a mine, failure is bound to follow. Hitherto we have treated of failure due to what may roughly be termed inorganic cause, and now we come to the organic ones, or those connected with the machinery of mine and mill. Here we strike upon a reef which is strewn with the wrecks of many a promising mine, and which tells a tale of disappointment and loss followed by disgust and the abandonment of the enterprise. In the mine itself, the pumping machinery originally erected is, perhaps, found unequal to its task, or the winding appliances are unequal to the task of keeping the mill going. In the mill the concentrating process decided upon has turned out a failure, or the motive power is insufficient for its task. In any case, from one cause or another, the machinery upon which large sums have been spent is inadequate, and as mostly happens at this juncture the working capital is exhausted. Then, too late, the advice of a competent man is sought and obtained, but alas! a few more thousands are required to put everything in proper trim. Many expedients are tried in order to raise this money, and generally without success, so that finally the property is brought under the hammer, and is either broken up at an enormous sacrifice, or some speculative buyer secures the whole at a fraction of its value, and succeeds where his predecessors have failed. We have published many articles on the subject of the choice of concentration machinery, and have in general terms intimated the lines upon which success should be sought. The instances of non-success arising from an injudicious choice are unfortunately known to most mining men, and we draw attention particularly to this cause of failure, not because it is of more importance than the others we have mentioned, but because, in their haste to secure quick returns for their money, men are apt to be led astray by some new fangled notions or rough and ready experiments, which are but stepping stones to final disaster.

When mining matters are taken in hand with ordinary business care and judgment, the chances of success are equal to those of any ordinary commercial business. It is in the interests of the industry to which this Journal is especially devoted, that we have pointed out some of the causes of failure, and while we deprecate what may be termed the gambling spirit which sometimes characterises mining operations, we maintain that, as a whole, the industry offers a fair field for investment.

## THE PHILIPPINES MINERAL SYNDICATE (LIMITED).

AS we promised our readers last week, we give in this leading article the results of our enquiries and examination of documents at the offices of the Philippines Syndicate (Limited). In doing this we are really carrying out a two-fold purpose. Our object at first really was to obtain authentic particulars of the mineral wealth of the Philippine Islands; to ascertain, in fact, whether the opinions we have heard of late are reliable or false; and it was in carrying out this purpose that we made profitable and gratifying acquaintance with a company whose existence deserves prominence. This is the second object. Indeed, both objects are involved one in the other, for as this company is the principal one operating in the district, and the only one using modern methods and machinery, we cannot possibly ignore it in dealing with the mineral wealth of the Islands. Although its offices are in London its existence is little known, but we think it has remained in voluntary obscurity too long, and that it is time its merits were

made public property. Some five years ago Mr. KARUTH, F.R.G.S., a gentleman who has made a long and deep study of mining, conceived the idea of exploiting the Philippine Islands and of ascertaining by personal inspection what was the real value of their mineral wealth. He had previously formed theoretical views from the information placed before him at Madrid and elsewhere. In November of 1890 a Mr. JAMES HILTON, a mining expert, was sent out and examined the country. He afterwards drew up a very encouraging report, which confirmed in every particular the views formed by Mr. KARUTH. He remarked that the occurrence of valuable mineral deposits in the Islands was well-known, and supposed that the colonists would endeavour to profit by the wealth Nature had placed at their disposal, the more so as the mining laws of the land were liberal, the taxes the reverse of onerous, and the conditions generally favourable. At that time mining, conducted skilfully and intelligently, was little known in the Philippine Islands. The total annual output of the precious metal at that period was officially stated to amount to the value of £100,000, three-fourths of which came from Luzon, and was chiefly obtained from open works in alluvial deposits. He reported very highly on the auriferous deposits near Paracale. They were very favourably situated for working on a large scale. They were close to a tidal river and the sea; labour was cheap and efficient; timber abundant; and the climate healthy. As a result of his encouraging report the Philippines Syndicate (Limited) was established, the directors of which immediately sent out Mr. GEORGE SIMPSON, a Northumbrian engineer, who had attained celebrity in Australia. Indeed, he was the first to examine the Hampton sands, in Western Australia, and to foreshadow the marvellous discoveries of gold in Coolgardie. Mr. SIMPSON arrived in Luzon early in May, 1892. He did not quite agree with Mr. HILTON on the value of the auriferous alluvial deposits (though later on he adopted the latter's views), but was very strongly impressed by the gold-bearing quartz veins, which he considered of much more permanent value than the alluvial deposits. Mr. SIMPSON wrote many voluminous reports upon the gold-bearing wealth of the Islands, and more particularly upon the properties acquired by the Syndicate. He selected for the latter's first operations a mining concession which he thoroughly examined. He had to drain a series of native shafts, in which he found a vein. This mine he named the "A 1." Mr. SIMPSON then, to the very great regret of all who knew him, fell ill, being rather reckless in exposing himself. Cerebral disease supervened, and he lay prostrate for two months. Feeling his inability to proceed unaided with the development of the "A 1," he applied to his agent in Singapore for skilled assistance. Men were, unfortunately, sent to him who, whilst he suffered from a relapse, ran wild in prospecting the country, but neglected the most ordinary precautions against the rainy season, spending large sums unnecessarily and delaying production for many months. When the Chairman of the Syndicate, Mr. ARCHIBALD FAIRLIE, arrived at the mines in September, 1893, he at once put an end to the inefficient management, and, Mr. SIMPSON having died in the following October, arranged for the reception of Mr. CARNEGIE WILLIAMS, a gentleman well-known to the majority of our readers as a thoroughly experienced mining expert. He arrived in November, and is still in charge of the management, and reports most encouragingly on the prospects of the Syndicate. The latter owns at present six distinct groups of mines, distributed over an area of approximately 400 square miles. The term "group" is used because the several mines forming a group can be worked under one management, and treated in one central mill and reduction establishment. Two of these groups are ready for working on a large scale, whilst the others are still being examined and extended. As we stated last week, the existence of this Syndicate is little known, as the capital has been more or less subscribed locally and privately. Of course, time has not yet permitted the payment of any dividends, but the directors are hopeful of commencing them before the year is out.

# NOTES AND COMMENTS.

PERHAPS more in mining than in any other profession, industry, or calling, is the need of a vigorous, far-seeing, and a wide-reaching foreign policy apparent. Instances of the curtailment and hampering of our commerce in many parts of the world are continually coming before us. An illustration of it was given on Wednesday by Mr. Kitching, in his speech from the chair, at the meeting of the Appantoo Mining Company. This mine is situated on the coast of Africa where, as elsewhere, the labour difficulty has made itself unpleasantly familiar. It is not to be wondered at that Krooboys should be in request as workmen, seeing that they cost something like 3d. a day, and are inured to the climate. Hitherto the supply and the demand have not been very much at variance, but quite recently our lively neighbours the French have calmly stepped into possession—or, as it is grandiloquently phrased, protectorate—of a neighbouring district, and have levied a tax on each Krooboy who is unreasonable enough to wish to emigrate out of his delightful country into the neighbourhood of the mines. Hence a growing scarcity of these useful workers. Without any deep knowledge of the modes and principles which guide the action of the Foreign Office, this would appear to us a legitimate opportunity for enquiry, and, perhaps, for the advancement of a request.

"I THINK it is a fair matter for congratulation that within 12 months of acquiring this property not only have we discovered gold in paying quantities, but actually started crushing. . . . This property we believe to be a most valuable one." So spake Mr. John Harvey at the third ordinary meeting of the Mysore Reefs Company, on Thursday, a statement which the majority of the shareholders are inclined to endorse. "After many years of waiting and working, we seem to have, at last, found gold in earnest. Indeed, our [the board's] conviction is that as soon as this property becomes more fully developed, we shall find ourselves in possession of a mine which will equal, if not exceed, in richness any in the southern part of India." The shareholders, therefore, have some tangible foundation for looking to the future with hope. As we said last week, they have little reason to regret they gave their consent to the purchase of the Valley property. The operations during the year have resulted more than satisfactorily. They are distinctly promising, and foreshadow something tangible in the not distant future. Mr. John Taylor himself thinks very highly of the property, and judges from the magnitude of the old workings to be seen at the surface that it is a mining speculation of great promise.

IN view of last year's coal strike, the profit of £8818 is one with which the shareholders in the Newport Abercarn Black Vein Steam Coal Company ought to be more than satisfied. Absolutely it is a good record, for the sum is a large one. Relatively it is more pleasing still, for it exceeds by £5226 the profits of the preceding twelvemonths, when masters and men were in harmony. The strike has not altogether been a bad thing for collieries in general, and this one in particular. One shareholder at Wednesday's annual meeting boldly averred that all the collieries with which he was connected—and he is a director of one—had thriven upon labour disputes. It would be too much to say that the Abercarn Company is an instance of this. They have not thriven upon the strike—circumstances would hardly have permitted them to do that—but they have confronted the difficulties occasioned by it with firmness and resolution, with the result that no diminution has taken place in the profits. The benefit—whatever benefit there is—to be derived from the higher prices which followed the disagreement, will be felt during the current year, the contracts for which have been made at more satisfactory figures than even could be expected. Evidently the directors have no disposition towards a folding of the arms to sleep. On the contrary, they are thoroughly awake as a body of business men versed in the intricacies of the coal trade to the interests of the company under their control.

REPORTS to hand as to the mines at Buluwayo are highly encouraging. Some of the reefs, easily discoverable owing to the old workings, have yielded extraordinarily rich gold. The movement thitherwards appears to be a considerable one, and the newcomers, sanguine as to the prospects, sneer at assays which would be cordially welcomed elsewhere. These pioneers are, of course, subjected to all the obstacles and inconveniences inseparable from the working of what is practically an entirely new country, but miners are not over particular, and they appear to be pretty well satisfied with the place as they find it. The appearance and mode of the old workings will be interesting from several points of view. Apart from considerations as to the riches that they indicate; there is the question of method so dear to the mind of the mining engineer. In an industrial reference, however, the present situation is eminently satisfactory, for the settlers have set to work in a way which clearly shows that they mean business, and will turn the next year or two to account. Operations are at present conducted, as was inevitable, in a more or less rudimentary way, but they will improve as time goes on. Before long we shall expect to hear more of what has been done in the neighbourhood of the late war.

SINCE our last issue we have mixed with some of the leading Welsh tinplate manufacturers. From them personally we have gleaned some information of the immediate prospects of the tinplate industry, which, we think, will be read with considerable interest by the proprietors of tin mining companies, especially taken in connection with what we had to say a fortnight ago on this same subject. We find that the Welshmen are even yet a good deal exercised over the Wilson Bill Tariff position, and that awaiting a definite settlement on this matter the current market situation is a good deal strained. Although August 1st has been fixed by the American Senate as the date for the commencement of the operation of the new custom duties in the general tariff, October 1st is the period assigned for the new tinplate duties to begin. The revelation of this circumstance is leading to a postponement of the increased buying by American importers, which the South Wales manufacturers had been looking for, and that is certain to take place sooner or later. For the present, although the proposed reduction has passed the Senate, it is not possible to report any conspicuous improvement in tin-plate industrial surroundings. American merchants who were present at the Midland quarterly meetings last week in Birmingham and district were still only buying from hand to mouth, and nothing would induce immediate speculation. The belief was, however, general that when the tariff has received the President's signature, and autumn approaches, things will be better, and a greater activity, combined with improved prices, may be looked for at the works.

Two weeks ago in this column we gave the views of a leading American tin-plate authority, then in this country, on the prospects of tin-plate manufactures. The tin mining industry will be interested in considering side by side with those views, opinions which have just been expressed to us by certain of the Welsh tin-plate makers of position among whom we have moved. While conceding that American production is likely to continue, these makers told us that they are not at all alarmed at the prospect before them. They remarked to us, in conversation, the importance in estimating the probabilities of remembering that United States manufacture, so called, consists up to the present in tinning black plates imported from this country. No manufacture of finished tin-plate cut and out through its various processes, right from the Bessemer tin bar, has yet been attempted—not at least on any large scale. The chief difficulty in the way seems to be the extreme thinness to which the plates have to be rolled, and the great care needed in the rolling process. American workmen have not yet been used to the severe heat and labour of standing before the rolls, with a continuity which is necessary if satisfactory plates are to be turned out, and if the sheets are to be kept from sticking. The new tariff, however, imposes a higher duty upon black plates than upon tin-plates themselves. It will certainly be necessary, therefore, for the American manufacturers to start making their own plates, if their turning plants are to be kept in operation. This is the view entertained at date by the Welsh producers. They do not admit the American boast that they are already tinning a third of their total consumption; but tin miners may certainly look for an enlarged American tin market as time passes.

MR. FRANCIS HART, a well-known journalist of Western Australia, and the compiler of the "Handbook" of that colony, having been commissioned by the Government to proceed to the eastern colonies to disseminate the information he had gained, has been freely interviewed by the Press on his arrival, more particularly with a view to ascertain his idea of on the prospects of mining in the Coolgardie and other districts. Speaking of the water difficulty, which, so far, has been the greatest trouble, he spoke of the energetic efforts of the Government to minimise the difficulty. As a matter of fact, he observed, there is really no great scarcity of water at Coolgardie, and certainly nothing to induce a recurrence of the scenes which took place at Broken Hill a few years ago. It is generally considered by those accustomed to reefing that by-and-bye water will be too abundant. We feel inclined to endorse his statement that miners and others expect too much from the Government, and trust too little to their own efforts. They do not recognise the duty resting upon them to find water. The opinion of Mr O'Connor, Engineer-in-Chief, and others is that as the real work of development is started there will be no lack of water. There will be the superficial, the subterranean, and the condensed supplies. Speaking upon the great rush of all sorts and conditions to Coolgardie, he very justly observes that it is scarcely to be expected that 6000 or 7000 people there will all strike rich gold.

ON the whole, he has a very high opinion of Coolgardie. He considers it absurd to suppose that a country whose surface has just been scratched has been played out. The reefs in the district have been proved at depth, he says, and the successful result already achieved at Bayley's gives the highest hope for the future permanency and richness of the field, as this particular line of the reef has been traced along a distance of some miles. Of course, we should expect Mr. Hart to sound the trumpet pretty vigorously in praise of his native colony. It would be strange, indeed, to hear him belittle its mineral wealth and prospects. Therefore, we think, we might with advantage modify a little of his sanguine and laudatory utterances. He also speaks very highly of the Southern Cross gold field, and is of opinion it will turn out to be an enormous one. The reefs, he observes, have been proved and have settled down to dividend-paying concerns. The following figures, which he collected before leaving Perth, show the amount of gold entered at the Custom House during 1893, and the first quarter of the present year. First quarter, 16,176 ounces, valued at £61,470; second quarter, 23,121 ounces, £87,860; third quarter, 25,262 ounces, £95,997; fourth quarter, 46,330 ounces, £176,056; totals, 110,889 ounces, £421,383. For the first quarter of this year the quantity exported was 35,367 ounces, valued at £134,398. Although the first quarter of the year is the worst owing to the scarcity of water, it will be noticed that the export of gold was more than double the amount for the corresponding quarter of the previous year. In 1890 the export of gold was valued at £86,000; in 1892, £226,284; and the Premier has publicly stated that is is quite probable that the value this year will be three-quarters of a million sterling. Of the total amount raised Yilgarn district, which includes Southern Cross and Coolgardie, contributes three times as much as any other field.

A WRITER, who designates himself an "Old Barrierite," states that the principal line of reef on the Murchison gold fields is the one which bears the name of Day Dawn, situated about four miles south of Cue. On this line of reef there have been six leases applied for, three being on the north side of the prospectors' claim and two on the other side. The Day Dawn South was taken up in a 12 acre lease, which was recently floated into a company in Melbourne. The reef outcrops along the surface from one boundary to the other, and gold can be seen freely in most of the stone all the way. The reef is well defined and dips about 1 in 3. This company has, he says, an ample supply of water at a shallow depth. The reef averages from 7 feet to 9 feet in width, the gold being evenly distributed from the foot to the hanging wall. The machinery comprises a 10-head stamper battery, with sufficient steam power to drive another extra 15 head, and is being rapidly erected, so that before long he hopes to hear of a good crushing from this mine. Situated on the south boundary of the above mentioned is the Day Dawn South No. 1 lease, which also consists of 12 acres. It is owned by a local syndicate, and will, he feels sure, turn out a good investment for the prospectors. At the present they are prospecting for the reef, and expect to cut it shortly. Now, all this is very sanguine, and should greatly encourage those interested directly in these mines. It is very likely, however, that the writer has an axe to grind, and that makes all the difference.

AN interesting interview with Mr. Edward Meikle, published in the *North Queensland Register*, throws a good deal of light upon the mining prospects of the Murchison gold field, as well as upon the conditions of life prevailing. The "subject" appears to have been particularly struck with the admirable character of the reefs in Yalgoo, a district which, as a mining centre, has been in existence but little over 12 months. As to the Emerald mines, "several good-sized leaders have been cut, and

all show rich gold, pieces prospecting from 100 ounces. Some 45 tons of surface loam from the claim gave 7 ounces to the ton." There can hardly be a water difficulty at Yalgoo, for "there is an abundant supply of fresh water obtainable at a depth of 30 feet, so that in this essential respect as well it possesses an immense advantage over the less favoured localities." Of the country about the place he says that it "is ridgy with the inevitable mulga, which, however, supplies firewood and the smaller timber used in mines." Mount Magnet can hardly be so favourably regarded. "The country is all more or less auriferous with bold outcrops of quartz, but owing to the scarcity of water, which is practically confined to the Government wells along the main road, is difficult to prospect."

CUE, the mining centre of the Murchison, is dismissed with greater brevity. The town has all the dignity of a police-court, a post-office, a public hall, and a newspaper. Wages there are high. Miners—such as are lucky enough to get into work—earn £4 a week, but there are many out of harness. In estimating its position as a mining town, it should be remembered that three years is its present age, while "further development of the reefs may show that with depth they improve, but meantime, the good reefs are few and the poor many." However, "a quantity of alluvial was got on the surface about Cue." Water here is at a premium. For ordinary domestic purposes a fee of 6d. per week each person is charged, but a horse cannot be watered under a charge of 3d. The Government well is 200 feet deep, and is worked by six men. Summing up, Mr. Meikle states his opinion that "The great want of the country, however, has been capital. With that essential, the difficulties which cannot be surmounted are few indeed, and from the number of companies lately registered to either prospect new country or develop discovered reefs, that want will be, and is, already removed, to a great extent." Thus Mr. Meikle on the Murchison gold field.

AMONG the numerous metals found in New South Wales, tin occupies a leading place, but although its existence was ascertained so far back as 1853, it was not until 1872 that the stanniferous deposits in the colony began to be systematically worked. The mineral occurs principally in the granite and basaltic country in the extreme north of the colony, near the Queensland border, at Tenterfield, Emmaville, Tingha, and in other districts of New England, and where the tin is found gems of various kinds are plentiful; the famous emerald mines at Emmaville, which are among the richest in existence, having originally been worked for tin. The metal has been discovered at Euriowie, in the Broken Hill district; at Burra, near Tumberumba, in the north; the Kempsey district, on the north coast; the valley of the Lachlan, in the central portion of the colony; and at Dora Dora, in the Albury district; and near Bombala, in the Monaro district in the south.

THE New South Wales Government statistician forms a lower estimate of the value of the tin raised and exported, but, at the same time, remarks that tin contributed in a very considerable degree to the general development of the natural wealth of the colony, and that in point of value its aggregate production stands in the fourth place next to gold, coal, and silver; and that during the years 1881-82 its yearly production was even in excess of that of gold. The production of the metal is now one of the settled industries of the country, and, as the supply is practically unlimited, the quantity raised depends almost entirely upon the price realised. There are no tin manufactures in New South Wales, and although the mineral is so plentiful in the colony, the whole of the manufactured tin used for canning meat and fruit, and other purposes has to be imported. The quantity of tin-plates so imported during 1892, amounted to 62,078 packages, of the estimated value of £49,557. There were also 19,033 packages of tinware, valued at £16,711. Practically the supply of tin in the colony is inexhaustible.

THE Coal Conciliation Board has justified its existence. It has come to a decision that the present rate of wages shall remain in force until January, 1896, so that for a period of nearly 2 years we are to all appearances assured from a repetition of labour difficulties. From the speeches which were made on both sides, it appear that there is a full consciousness of the gravity of the step taken. It is boldly acknowledged to be an experiment, and as such will be awaited in the issue with no little anxiety. In any case, the upshot of the combination in one representative body of the two interests of employers and employed is likely to spread good feeling and mutual understanding on both sides. It has long been an opinion, widely entertained, that the last dispute was wholly referable to the evils of competition, cutting down the prices to the lowest possible point, and enforcing the utmost possible limit of cheapness in production. However, there seems a possible way out of the difficulty, and there only remains for us to hope the best from it.

## FORTHCOMING MEETINGS.

**** We shall be obliged if Secretaries or other Officials of Mining, Railway and other Companies will be good enough to advise us as early as possible of the date, time and place of their forthcoming meetings—whether statutory, semi-annual, annual, general or extraordinary, confirmatory or adjourned—in order that particulars may be announced for the benefit of our subscribers and more particularly our country readers. Balance sheets, reports and other matter to be submitted at such meetings should, where possible, accompany the intimations of the meetings sent.*

| Name of Company. | Date. | Nature of Meeting. | Place. | Time. |
|---|---|---|---|---|
| Cumberland Lands Co., Ltd. | July 24 | General | Winchester Ho. | 2.0 p.m. |
| Alabama Coal, Iron & L'd Co.. | July 25 | General | Winchester Ho. | 12 noon |
| Lion (Mozambique) Gold Co. | July 25 | General | Winchester Ho. | 12 noon |
| Oriental Bank Estates Co. ... | July 25 | General | Winchester Ho | 12 noon |
| New Investment Trust Co. ... | July 25 | General | Winchester Ho. | 3.0 p.m. |
| South Eastern Railway Co... | July 26 | General | Cannon-street | — |
| Metropolitan Railway Co. ... | July 27 | General | Cannon-street | 12 noon |
| New St. Augustine..... | July 27 | General | Cannon-street | 2.0 p.m. |
| Quebrada Railway Land and Copper Company ..... ..... | July 27 | General | Cannon-street | 2.0 p.m. |

# OUR CITY ARTICLE.

FRIDAY EVENING.

## THE MINING MARKET.

**An improved beginning.—Both markets steady.—Chartered rally.—Changes in Bechs.—Disposition to dulness towards the close.**

AN improvement, as the beneficial result of the carry-over, has prevailed in the tone of both markets during the week until the close, when dulness appeared about to return. The improvement manifested itself decidedly on Monday in both markets. A general disposition towards higher prices ruled everywhere—diamonds excepted. Chartered were conspicuous upon the crest of the upward movement, Consolidated Gold Fields and Bechs. rallying in sympathy. In Rand gold shares changes were not important, but most of these were of the nature of improvements. Diamonds were somewhat weak, a reaction from the previous activity depressing both Jagers and De Beers. Indian were strong. Nundydroog's were in very favourable request, and the other shares in the same section rallied sympathetically. Elsewhere in the miscellaneous market there was a distinct increase of strength. Tuesday brought but little change to the Rand section of the market. Abundant indications went to show the accession of strength among the shares consequent upon the recent sifting out of the weaker speculators. No great amount of business was transacted; but there were general enquiries for the more favourite shares, which consequently hardened appreciably. Chartered moved further up carrying Bechs. with them. The movement towards higher quotations in the gold and diamond sections was general, though slow. Indian and Miscellaneous shares were remarkably quiet. Indians showed a slight tendency to relapse after the recent general improvement. The easing off, however, was not on any appreciable scale, and is due to nothing more than the prevailing calm. In the Rand section there was no weakness to record on Wednesday. Gold shares, though not over active, maintained their prices. Land shares were, on the other hand, not so steady as on the preceding days. Chartered had a small relapse, owing to profit snatching, and Bechs. were rather weaker on the amalgamation scheme. Explorings were similarly a trifle depressed. Diamonds remained unchanged in price, but there was some activity displayed amongst them. No relapse from the steadiness of the miscellaneous market could be recorded, while the Indian shares were in the same satisfactory state as has marked them during the whole of the week. Some of the miscellaneous shares had falls, but these were uniformly amongst the less important sections, and said nothing against the temper of the market. There was a lack of demand for the smaller shares, which caused them to give way considerably. Thursday's condition of the market was much less buoyant than that of the early part of the week. There was hardly anything doing in any department—gold, diamonds, lands or miscellaneous. In the absence of anything definite to do the dealers began speculating as to the result of the Bechuanaland Exploration meeting. In expectation that the scheme would be adopted, Bechs. fell to 22s. 9d., but when its rejection became known a sharp recovery took place. Southern Lands fell on the same news. The depression prevailing all over the market was due mainly to the absence of business, and not to any causes likely to be permanent.

### British Mines.

There has been a fairly good tone in the Cornish market during the past week in spite of the weakness of tin, but dealings have been limited. Killifreths have again been chiefly dealt in, with a little business in Tincrofts, Dolcoaths, and Cook's Kitchen.—Risen: Cook's Kitchen, 1s. 3d.; South Crofty, 5s.; Wheal Agar, 7s. 6d.; and Wheal Basset, 2s. 6d.—Fallen: Blue Hills, 2s. 6d.; Dolcoath, 10s.; Polberro, 7s. 6d.; South Condurrow, 2s. 6d.; West Kitty, 7s. 6d.; and Wheal Kitty, 1s. 3d.

### South African Shares.

A decided improvement manifested itself in the South African market at the beginning of the week, in reaction against the recent period of depression. Chartered rose to 29s. 9d., and closed at 29s.—a rumour enlivening the market to the effect that the Government would give their aid in the laying of the line to Buluwayo. Consolidated Gold Fields, in sympathy, advanced to 2 1/16 buyers, Explorings rallying to 3 1/4. There were not many movements of importance in the Rand section. Jumpers, Nigels, Bantjes, Crœsus, Glencairns, and May Consolidated hardened; Langlaagte, Champ d'Or, Champ d'Or Deep, Rietfontein, Modderfontein, and Buffelsdoorn were rather easier. On the other hand, Transvaal Gold hardened to 1 7/8 buyers, while Simmers were decidedly firmer. Some weakness was developed among the Diamond shares. Jagers fell back 3/16 to 12 11/16, while De Beers closed weak at just above 14 1/16. There were indications throughout Tuesday that the shares in the Rand section of the market had profited by the recent accession of firmness. Among other improvements Crown Reef rose 1/8 to 7 1/16. Primroses and Glencairns were in demand, and hardened considerably. Goldenhuis Estate were enquired for at 4 3/4. Langlaagte Royal improved to 2 3/16, Simmers to 7 1/8, Wemmers to 4 1/16, May Consolidated to 9s., and there were small rises in Salisbury, Sheba, Henry Nourse, Modderfontein, Randfontein, and Moodies. The only flatness among gold shares was in Princess. Chartered continued to advance, and left off at 29s. 9d.—a gain of 9d. on the day. Bechs. also rallied to 25s. Diamond shares were firmer after the recent relapse. Jagersfontein recovered to 12 7/8. In the South African market the firmness of the last few days remained unimpaired throughout Wednesday. A reaction of 6d. in Chartered was due entirely to the profit-taking of those who had bought for the rise. Bechs. fell to rather a greater extent, the downward movement being due partly to sympathy with Chartered, and partly upon the report as to the proposed amalgamation. In Rand shares there was no large amount of business transacted, but changes were generally in the favourable direction. Jubilee rose no less than 1/16 to 5 1/16, and Simmer and Jack and Wemmer each rallied 1/8 to 7 1/4 and 4 1/16 respectively. Henry Nourse were strong at 2 21-32, and gains varying from 1-32 to 1/16 occurred in Ferreira, Goldenhuis Deep, Gold Fields of Mashonaland, and Village Main reef. Champ d'Or receded 1/16 to 1 1/8, and Langlaagte, Robinson, Van Ryn, and Worcester were somewhat easier. A relapse of 1s. took place in New Main Reef to 9s. 6d., Randfontein were down to 14s. 9d., and smaller losses took place in Alexandra Estate at 3s. 3d., and in Spitzkop at 4s. Diamond shares remained unchanged. Dulness again fell upon the South African market on Thursday. There was little or nothing doing, and the interest of the members, in the absence of any more attractive object, was directed towards the result of the Bechuanaland meeting. In the fear that the amalgamation scheme would be adopted, the shares fell to 22s. 9d., but immediately the result was known they rose to 25s. 9d., falling subsequently to 23s. 9d. Southern Lands fell 1/4. Chartered gradually relapsed during the day to 27s. 9d. Rand shares were dull, and declines took place in Langlaagte, Simmer and Jack, Geldenhuis Estate, Gold Fields Deep, Metropolitan, Salisbury, Henry Nourse, and Bantjes. Diamonds were fairly active, both Jagers and De Beers closing slightly to the good. During to-day the dulness of the market has perceptibly increased. Among gold shares there has been positively nothing worthy of remark doing; nor have diamonds been at all active. Bechs. have remained at about yesterday's figure, the fact of the amalgamation scheme having been rejected not entirely counterbalancing the fact that it was proposed. Chartered have risen 6d. on to-day—almost the only gain in the market worth mentioning. Risen: Bantjes, 1s. 6d.; Chartered, 1s.; Exploring, 2s. 6d.; Glencairn, 2s. 6d.; Henry Nourse, 1s. 3d.; Heriot, 2s. 6d.; Jubilee, 2s. 6d.; Langlaagte Royal, 2s. 6d.; Luipaards Vlei, 1s.; Mays, 1s.; Modderfontein, 1s.; New Crœsus, 1s. 3d.; ditto Primrose, 2s. 6d.; New Jagers, 10s.; Nigel, 1s. 3d.; Sheba, 6d.; Simmer and Jack, 5s.; Stanhope, 3s. 9d.; Transvaal Exploration, 1s.; Village Main Reef, 2s. 6d.; Wemmer, 2s. 6d.—Fallen: African Gold Recovery, 1s. 3d.; Aurora, 1s.; Barrett, 3d.; Buffelsdoorn, 1s.; Champ d'Or, 1s. 3d.; ditto Deep, 6d.; Consolidated Gold Fields, 1s. 3d.; East Rand, 1s.; Ferreira, 2s. 6d.; Jumpers, 2s. 6d.; Langlaagte, 2s. 6d.; Main Reef, 1s. 3d.; Metropolitan, 1s. 3d.; Moodies, 1s.; New Virginia, 3d.; Princess Estate, 2s. 6d.; Southern Land, 15s. paid, 2s. 6d.; ditto fully paid, 2s. 6d. Spes Bona, 1s.; Spitzkop, 6d.; Southern Reef, 3d.; Van Ryns, 1s. 3d.; Worcester, 1s. 3d.

### Indian and Miscellaneous Shares.

At the commencement of the week the Indian and Miscellaneous market was much healthier in tone than at the close of the last. This more satisfactory characteristic was wholly due to the law of reaction, there being no causes more definite in the case than those preceding the settled gloom of the earlier part of last week. Indian shares, as usual, were well in the front of the market. A lively demand sprang up for Nundydroogs upon a satisfactory report from the directors, and the future of the share seems a hopeful one. Mysore Reefs rose 6d., while Mysores improved to 2 1/2. In other directions, Montanas, De Lamars, Elkhorns, and Broken Hill Props. revived to some extent. Rio Tinto fell 1/16 to 13 1/4. Tuesday was lifeless enough in the Indian and Miscellaneous section of the market. Champion Reef eased off 1/16 to 3 3/8, Nundydroog were sold at 29s., Mysore Reefs were quoted at 14s. 6d., and Gold Fields of Mysore at 21s. 6d., each of these being slightly easier; Ooregum, however, kept steady at 3 1/4. A small decline took place in Don Pedro, Glenrock, and New Queen; but Montana were bid up to 14s. 6d., transactions having been recorded at 14s. 9d. Rio Tinto fell 1/16 to 13 1/16. Steadiness remained on Wednesday the characteristic of this market, and in the Indian market hardened into firmness. Mysore Reefs and Kempinkote were in favourable demand. Many of the more unimportant shares were a trifle weaker. Among those which fell were Carrington, West Argentine, La Yesca, Balkis Eersteling and Land, Barrett, Spitzkop, South Australian Petroleum, Kaboonga, Kapanga, and Australian Consols. Lisbons and Caratals, on the other hand, hardened slightly. Thursday brought an accession of dulness into the miscellaneous market; movements were generally very uncertain. De Lamars were firmer, Harquahalas rather lower, and Montanas also receded again. Caratals were further enquired for, but Spitzkops, Balkis Land, Lomas, and a number of other low-priced shares fell. Cape Copper relapsed 1/16 to 1 1/8. Namaqua, on the other hand, improved to 3/8. Mysore Reefs relapsed 1s. to 14s. Small recessions also took place in Mysore West, Nundydroog, and Ooregum Preference. These falls were due entirely to the absence of public support, and not to any exceptional news from the properties. Little or no business has been transacted to-day in the Indian and miscellaneous market. A fairly steady tone was maintained by Indian shares, which closed firm. There have been no movements of any importance.—Risen: Alaska, 1s. 3d.; Brilliant St. George, 1s.; Broken Hill Proprietary, 1s. 3d.; Colombian Hydraulic, 1s.; Craven's, 9d.; Day Dawn P.C., 3d.; Kempinkote, 3d.; Mills' Day Dawn, 1s. 3d.; Mysore, 1s. 3d.; Mysore Wynaad, 3d.; Namaqua, 2s. 6d.; Nundydroog, 2s. 6d.; Ooregum Ordinary, 1s. 3d.; Tolima A, 20s.; Tolima B, 15s.—Fallen: American Belle, 3d.; Australian Broken Hill, 6d.; Balaghat, 6d.; Brilliant Block, 1s. 3d.; Callao Bis, 3d.; Carrington, 3d.; Champion Reef, 2s. 6d.; Don Pedro, 3d.; El Callao, 5s.; Golden Feather, 1s.; Gold Fields of Mysore, 1s. 3d.; Jay Hawk, 6d.; Kaboonga, 3d.; Kapanga, 6d.; Lomas, 3d.; Mount Morgan, 1s. 3d.; Mysore Reef, 6d.; Mysore West, 3d.; New Guston, 6d.; New Queen, 3d.; Ooregum Preference, 2s. 6d.; Palmarejo, 3d.; Pinos Altos, 6d.; Quebrada, 3s. 9d.; Rio Tinto, 3s. 9d.; South-East Mysore, 3d.; Sierra Buttes, 1s.; Springdale, 6d.; Tharsis, 2s. 6d.; and Wentworth Priority, 1s.

# THE EDITOR'S LETTER BOX.

**** We wish it to be understood that we do not hold ourselves responsible for, and do not necessarily endorse, the opinions of correspondents. All communications must be accompanied by the names and addresses of the senders, though these need not necessarily be published.*

## THE SOUTH AFRICAN TRUST AND FINANCE COMPANY, LIMITED.

TO THE EDITOR OF "THE MINING JOURNAL."

SIR,—Will you permit me to inform the shareholders in the above company that it is impossible to ascertain the result of the poll until one or two questions that have arisen have been settled. In the meantime I wish to state that the votes in support of the proposed investigation committee were not 3592, as stated by the Chairman at the meeting, but nearer double that number, and this exclusive of the votes of many of our supporters who had not paid their calls, and whose votes consequently cannot count. I would also call attention to some of the Press (of course unintentionally) having added a cypher to the amount of support the Chairman claimed to have obtained, thus giving the impression that the board had 100,000 votes more than they claimed to have had, and I may add that some of their support was withdrawn when the shareholders heard the facts of the case.

If the result of the poll should favour the directors, and enable them for the moment to close their books and prevent independent investigation, we shall ask our supporters to sign a requisition for a Board of Trade inquiry. Those who have not paid their calls will not be debarred from signing this requisition. Doubtless the directors have not objected to an inquiry being made of them as to the affairs of the company by a few of their own friends, but if we cannot have the proposed independent inquiry, the best and only course is to move the Board of Trade. To obtain this inquiry the signatures of members holding one-fifth only of the capital of the Trust are requisite, and those who have supported us hold considerably more than this amount.

Thanking you in anticipation for the publication of this letter, I am Sir, yours, &c., W. COTTON.

28, *Ampthill-square, N.W., London, July 16, 1894.*

## DON PEDRO GOLD MINING COMPANY.

TO THE EDITOR OF "THE MINING JOURNAL."

DEAR SIR,—I wish to draw attention to the ridiculously low price of Don Pedro shares. They can be got at 4s. the £1 share, 16s. 6d. paid up. Some years ago, when cent. per cent. dividends were paid, £7, and even £8, were paid for them, until water level being reached and no mechanical power available, stopped further extraction of the rich lode. Since then powerful sinking machinery, worked by cheap hydraulic power, has been recently completed, and the mine proved in depth and width to be even richer than in the old times.

At the moment galleries are being driven through the enormous mass of reserves—gold-bearing ore—and the shaft sunk to effectively drain the mine. Funds sufficient to do this, and bring a large amount of gold to the surface, have been subscribed by the shareholders themselves, and the dividends long expected seem now secured to commence very shortly—say, in four to six months' time. Why the shares should be at 4s., when they were some months back at £2, is to me only accounted for by the supposition that outsiders do not know that an enormous body of rich gold-bearing lode has been proved to exist in the mine, and has only required drainage to put it into a saleable state.—Yours truly, A SHAREHOLDER.

## THE MANGANESE MINES OF LAS CABESSES.

TO THE EDITOR OF "THE MINING JOURNAL."

SIR,—With reference to Mr. Bowie's communication in your issue of the 14th inst., it should hardly be necessary to point out that the *20* per cent. phosphorus was a misprint. What I said was *·20* per cent. Mr. Bowie must be poking fun when he suggests that the stuff should be shipped as phosphate ore.—Your obedient servant, GEORGE E. COLLINS.

# THE ZINC ORE DEPOSITS OF SOUTH-WESTERN NEW MEXICO.*

By WILLIAM P. BLAKE, Mill Rock, New Haven, Conn.

IN directing attention to the newly-opened zinc ore region in South-Western New Mexico, I adopt a suggestion made at the Engineering Congress last summer in Chicago by Professor Le Neve Foster, who commended the indication of the geographical position of a district under description by means of an outline map. Such a map is the more important in this instance, inasmuch as the region to be described is remote and little known even in the United States. Until within a few years it has been infested by the savage Apaches, has not been often visited by mining engineers, and could not be examined with safety. It is not far from the old stage road to Silver City, but it is now reached by the Silver City and Northern Railroad, a branch line from the Silver City branch of the southern trans-continental road. It is between Silver City and Lake Valley, and not far from Fort Bayard and Georgetown, or from the famous copper mines of Santa Rita. The railway terminates at Hanover, in the gulch of the same name. This is the shipping point for both the zinc ores and iron ores of that district.

### Geology.

It is a region of gray and white palæozoic limestones, probably lower carboniferous and older, rarely showing any traces of organic remains, and resting at low angles of inclination upon a foundation of light-coloured crystalline rocks of Archæan age. These ancient rocks are granitic, but have so much parallelism of structure in the arrangement of their component minerals as to suggest at once a mechanical origin, though by subsequent metamorphosing agencies they have become dense and solid, and being hard and feldspathic rather than micaceous, the rock cannot be described as gneiss. The structural planes are nearly vertical and trend north-westerly. Mineralogically, the rock is characterised by soda feldspar, amphibole, and an abundance of epidote of a light pistachio green colour, generally massive, rarely crystalline, and often associated with grains of magnetite. The abundance of this epidote, distributed over the hills and mingled with boulders of iron ore, is very striking and unusual. It may also occur in the limestone, especially at the contacts with intrusive dykes, as garnets are found.

The best exposures of the foundation rocks are along the ravines, notably at Hanover, at the end of the railway. The rocks of the hills are generally limestones or dolomites, and both these and the granitic rocks are traversed by dykes of intrusive porphyry.

### Beds of Smithsonite and Calamine.

The abundance of the massive iron ore first led to the exploration of the region and to the construction of the railway. Copper ores also claimed attention, and at last the oxidised zinc ores were mined, and by reason of their exceptionally good quality and high grade, found a ready sale to the works in Wisconsin for the production of the white oxide of zinc. These ores comprised the carbonate (smithsonite), with some calamine, and were at first quarried at the surface, and then followed downward in irregular pits and cave-like excavations, in some instances to a depth of 60 feet or more.

The ore occurs in irregularly concentric crusts or layers, or in cavernous masses made up of small layers or concretionary sheets of pure carbonate ore, nearly white and cream coloured, but in some places coloured grey, or even black, by manganese oxide. Crystals are rare ore. The ore is sometimes in close association with aggregations of small quartz crystals, the presence of which reduces the percentage of zinc—and, consequently, the commercial value—so much as to prevent profitable shipment. The best carbonate ores, assayed by the car load, contain 35 to 38 per cent. metallic zinc.

The excavations upon these carbonate ores show that they occupy cavernous spaces in the limestone strata, and irregular openings between the beds, gradually thinning out to mere seams. Considerable quantities are also found in the superficial soil, clays and ochres, derived, doubtless, in great part from the corroded limestones and from the parent sources of the zinc ore. It is evident from a study of the phenomena, that the limestones have been corroded by zinc bearing solutions, and that the zinc carbonates replace the dissolved rock.

The sources of such zinc-solutions are in many cases obscure, but in other cases very plain. As a general rule, the largest and richest deposits of smithsonite give no direct indication of their origin. They do not have any obvious connection with any source or other ore, the original ore having undergone complete decomposition and recomposition,

### Deposits of Zinc-Blende or "Black-Jack."

There is no reason to doubt that the carbonated ores existed originally as the sulphide of zinc (blende, black-jack, or sphalerite of the mineralogist). This occurs in the same region in beds, in masses, and disseminated in other minerals, notably at the claims known as the Black Wolf, the Zinc Valley, and the Thunderbolt, where excavations have revealed large deposits of black-jack, none of them directly associated with the carbonate ore.

This blende is the dark reddish-brown variety, but is rich in zinc and free from arsenic and antimony. It does not appear to be highly argentiferous, and is an excellent ore for making spelter. It is granular massive, not found in crystals, and exists in beds sometimes 20 feet or more in thickness. It is usually intermingled with iron pyrites in grains and bodies of irregular shape dispersed through the mass; but close inspection shows that there is a rude structural distribution in layers parallel with the sides of the bed or mass of ore. Some parts of the ore bed yield clean massive jack, but the larger part is mixed with pyrite.

Any associated smithsonite is confined to the surface, or near to it, or to one side of the zinc blende, and is not intermingled, being evidently in all cases a secondary product, resulting from the oxidation of the sulphide of sulphate, the solution of which, percolating to the adjacent limestone or dolomite, is immediately decomposed, with the formation of zinc carbonate and sulphate of lime and sulphate of magnesia, which flow away. The zinc carbonate thus replaces the lime and magnesia carbonate, and the extent or magnitude of the deposit of zinc carbonate depends first upon the magnitude of the original bed of blende, and, second, upon the extent to which it has suffered decomposition.

Descending a shaft about 35 feet deep, a hard wall of what appears to be a dyke of intrusive rock is found on one side, and on the other, a softer, altered rock, apparently limestone coloured by iron oxide and corroded. At the bottom, an inclined floor of limestone leads to an irregular cavernous space from which about 15 car loads of excellent smithsonite ("bone") and calamine have been taken. Some ore remains, running off in seams and sheets between the layers of limestone, and evidently thinning out as the distance from the source increases.

At the side of the excavation, next to the dyke, zinc blende is found in patches and lenticular bunches, 3 to 4 feet thick. These are enclosed in an excessively hard and tough rock, locally known as "green rock," which is very difficult to break. It consists of fibrous amphibole, with garnet and probably epidote, and in places carries hematite iron ore. The garnets are massive and amber yellow, and sometime show the faces of crystals. There is also some calcite. The whole is evidently the result of metamorphic action, doubtless in connection with the dyke, the precise relation of which to the zinc blende and its associated minerals could not be determined for want of sufficient exploration of the ground. The thickness of the dyke is not known.

We have in this primary ore a combination of amphibole, garnet, epidote, specular iron, zinc blende and pyrite. These minerals are disposed more or less in irregular layers, following in a general way the direction of the walls or sides of the bed. This structure gives the ore the appearance of a segregation.

At a second opening upon the same claim an irregular chamber, 40 to 50 feet across, is excavated in similar zinc ore. The walls are massive ore, and the full extent of the mass has not been determined. There are, however, indications of the dyke at one side, and, on the surface above, this dyke appears to be about 40 feet wide. The full extent of this large bed of zinc ore and its exact relation to the dyke are not fully shown; but it appears to be an irregular lenticular mass, partially bedded in the limestone strata, and containing more of the garnet and actinolite on the side contiguous to the dyke than upon the side next to the limestone beds.

The form of the deposits of zinc blende seen at other places is generally lenticular; but the deposits being mostly, if not in all cases, along the planes of contact of intrusive dykes, or following the planes of faults, they have linear extension and sequence, so as to present the general appearance of lodes. This is especially well shown in the two contiguous claims known as the Black Wolf and the Zinc Valley, where a series of bunches of zinc blende is found in one line for nearly the whole length of the two claims. The deposits may be classed as contact deposits, or segregations following the dykes or the plans of metamorphism. The lenticular form is best displayed in the smaller bunches of ore; and these may be taken as typical of the form of the largest deposits. The form of the zinc blende deposits, however, has not been much shown by explorations, very little having yet been done to develop the zinc blende. For this reason it is not yet possible to delineate with certainty the exact relation of the deposits to the wall rocks. So also the relation of the massive garnet to the limestones has not been clearly shown. If we regard the massive garnet and the massive actinolite as portions of the ore deposit (as it seems we should do), the magnitude of the aggregations is much increased. At one end of the Zinc Valley claim the garnet rock crops out in high cliffs, and has formed a heavy talus of blocks, from a few inches to many feet in diameter. This garnet rock is composed almost wholly of garnets of a light colour, generally wax yellow, of the variety grossularite, and having a faint resemblance in colour to the lighter resinous looking varieties of zinc blende, technically known as "resin jack." It was for a time supposed to be a form of zinc blende, a mistake which derived some support from the fact that tests of some of this garnet rock proved the presence of a notable quantity of zinc oxide. An examination shows that zinc blende is closely associated with it, the blende being distributed in grains and layers, and sometimes in bunches of considerable size. It is similarly distributed in the actinolite. This actinolite is the light green variety of amphibole, in radial coarsely fibrous masses, the divergent prisms closely aggregated, and often 2 or 3 inches long. At other places it is a mass of closely interwoven fibres, making an exceedingly tough rock, but holding minute and sometimes almost microscopic grains of zinc blende in its mass. This is true, not only of the fibrous varieties, but of the coarsely radial masses, in which grains of sphalerite are distributed freely between the bladed crystals. These grains vary in size from a tenth of a millimeter or less to over a millimeter in diameter, being generally about the size of mustard seed.

The zinc blende, the actinolite, and the garnet rocks appear to have been formed contemporaneously, to be idiogenous, and to have been a part of the original magma from which these minerals were segregated or deposited. Galenite, the usual associate of zinc blende, appears to be generally absent from these deposits, except in very small quantity, though it occurs in workable quantity in the same district. The presence of manganese oxide in some of the secondary ores—the smithsonite and calamine—indicates its existence in the sphalerite.

*(To be continued.)*

* A paper read before the Virginian Beach meeting of the American Institute of Mining Engineers.

WORK at the Block 14 Smelting Works at Port Adelaide is progressing rapidly. The smelter is almost finished, and will, in all probability, be started in about three weeks' time. The two boilers have been erected, and the office is also receiving attention. The masonry for the crushing plant is almost completed. The barque *General Gordon* has arrived at Port Adelaide with the first cargo of coke to be used at the works.

# THE METAL MARKETS.

## LONDON METAL MARKET.

THE METAL MARKET—LONDON, JULY 20.

### Copper.

THE G.M.B. market has been adversely affected by the increase in statistics, viz., over 1500 tons for the fortnight, and also by the unfavourable news from America respecting the Tariff Bill, and prices declined to the extent of about 10s. On Monday nearly 1000 tons changed hands at £39 to £38 17s. 6d. s.c., and £39 7s. 6d. to £39 5s. three months. Tuesday's turnover was less by about one-half, and £38 12s. 6d. was finally accepted for s.c., whilst this position touched £38 11s. 3d. on Wednesday, and £38 10s. on Thursday, the business being small on both days. To-day's business was at unchanged prices, and we close quiet at £38 8s. 9d. to £38 10s. s.c., and £38 16s. 3d. to £38 17s. 6d. three months. As to consumption, this continues fairly good, though there is not much buying going on in fine sorts at the moment.

### Tin

was weak at the opening and values lost ground, under the influence of sales of moderate quantities. Shipments from the Straits are reported to be 2400 tons for the fortnight, and this circumstance has operated against the article to a certain extent. £67 12s. 6d. was the first price paid for spot Straits, 2s. 6d. less being accepted the same day, whilst Tuesday brought a decline to £67 5s., followed by a rally of 2s. 6d. On Wednesday £67 2s. 6d and £67 5s. were successively paid, and on Thursday values ran down from £67 2s. 6d. to £66 17s. 6d. To-day business has been done at £66 12s. 6d., and we close to-night steady at £66 10s. to £66 12s. 6d. s.c., and £67 to £67 2s. 6d. three months. In the Dutch market Billiton has gone down from 41 fl. to 40 fl. s.c., and from 41¼ fl. to 40¼ fl. three months. The Dutch market has again been flat this week, and prices receded rapidly without any reaction whatever to interrupt the decline. The close on Wednesday was somewhat steadier, with the exception of Banka, for which there were many sellers and few buyers. This brand still rules about 1½ fl. above Billiton.

### Pig Iron.

In Glasgow, Scotch Warrants, after opening easy at 41s. 9d. s.c., improved to 41s. 10½d., and closes with buyers at a ½d. less. Hematite is quoted at 43s. 9d., and Cleveland at 35s. 4½d. Shipments from Scotland last week amounted to 5832 tons, an increase of 1725 tons upon those of the same week last year.

### Lead

has given way considerably, but is steadier again towards the close which is at £9 7s. 3d. buyers of soft foreign, £9 8s. 9d. to £9 11s. 3d. English.

### Spelter

is steady at £15 18s. 9d. ordinaries, and £16 to £16 2s. 6d. specials.

### Antimony

unchanged at £32.

### Quicksilver

is quiet, but steady at £6 firsts and £5 18s. 6d. seconds.

The following are to-night's (July 20) prices of metals;—

| | £ | s. | d. | | £ | s. | d. |
|---|---|---|---|---|---|---|---|
| **Copper.** | | | | | | | |
| Tough cake and ingot | 41 | 2 | 6 | | 41 | 12 | 6 |
| Best selected | 41 | 12 | 6 | | 42 | 2 | 6 |
| Sheets and sheathing | 49 | 10 | 0 | | 50 | 0 | 0 |
| Flat bottoms | 52 | 10 | 0 | | 53 | 0 | 0 |
| Chili bars | 38 | 8 | 9 | | 38 | 16 | 3 |
| Good merchantable, spot, & 3 months respectively | | | | | | | |
| Copper tubes, seamless | — | | | | 0 | 0 | 6¾ |
| **Alloys.** | | | | | | | |
| BRASS: Wire | — | | | | 0 | 0 | 5 |
| " Tubes (solid drawn) | — | | | | 0 | 0 | 5½ |
| " Sheets | — | | | | 0 | 0 | 5¾ |
| PHOSPHOR BRONZE: Alloys II. | — | | | | 88 | 0 | 0 |
| " " III. or V Cog Wheel Brand | — | | | | 93 | 0 | 0 |
| " " VII. | — | | | | 95 | 0 | 0 |
| " " XI. | — | | | | 90 | 0 | 0 |
| " " Vulcan brand A1 B.C. | 80 | 0 | 0 | | 85 | 0 | 0 |
| DURO METAL | 80 | 0 | 0 | | 85 | 0 | 0 |
| BULL'S METAL | — | | | | 70 | 0 | 0 |
| **Ferrobronze (Vivian's).** | | | | | | | |
| Ingots per lb. | 0 | 0 | 6¾ | | — | | |
| Ordinary sheets, plates, bolts and bars | 0 | 0 | 6¾ | | — | | |
| Screw bolts and nuts | 0 | 0 | 8¾ | | — | | |
| Pump rods, plain | 0 | 0 | 7¾ | | — | | |
| " finished | 0 | 0 | 10¾ | | — | | |
| DELTA METAL: No. 4 (per ton) | — | | | | 73 | 10 | |
| " Sheets and plates (per lb.) | 0 | 0 | 10½ | | — | | |
| " Bars, round, square, flat (per lb.) | 0 | 0 | 9½ | | — | | |
| " " hexagon (per lb.) | 0 | 0 | 9 | | — | | |
| **Tin.** | | | | | | | |
| English, ingots, f.o.b. | 70 | 5 | 0 | | 71 | 10 | 0 |
| " bars | 71 | 5 | 0 | | 71 | 10 | 0 |
| " refined | 72 | 5 | 0 | | 72 | 10 | 0 |
| Straits, spot and 3 months respectively | — | | | | 66 | 10 | 0 |
| Australian spot, and three months respectively | — | | | | 67 | 0 | 0 |
| Banca " (in Holland) | 68 | 17 | 6 | | 69 | 0 | 0 |
| TIN PLATES: Charcoal, best quality per box | 0 | 16 | 0 | | 0 | 18 | 6 |
| " " ordinary | 0 | 14 | 0 | | 0 | 15 | 6 |
| " Coke, best quality | 0 | 11 | 0 | | 0 | 11 | 9 |
| " " ordinary | 0 | 10 | 0 | | 0 | 10 | 3 |
| *These prices of tinplates are f.o.b. at Swansea: at Liverpool 6d. per box more.* | | | | | | | |
| **Iron.** | | | | | | | |
| Pig, o.m.n., f.o.b., Clyde, spot | — | | | | 2 | 1 | 10 |
| " Scotch pig, No. 1 Gartsherrie | — | | | | 2 | 17 | 6 |
| " " Coltness | — | | | | 2 | 16 | 6 |
| " " Clyde | — | | | | 2 | 13 | 6 |
| " " Govan | — | | | | 2 | 3 | 6 |
| Bars, Welsh, f.o.b. Wales | — | | | | 5 | 2 | 6 |
| Plates " | — | | | | 6 | 2 | 6 |
| Bars, Staffordshire, at works | — | | | | 5 | 5 | 0 |
| Sheets " " | — | | | | 6 | 10 | 0 |
| Plates " " | — | | | | 6 | 7 | 6 |
| Hoops " " | — | | | | 5 | 7 | 6 |
| Ship plates, Middlesborough | — | | | | 4 | 15 | 0 |
| STEEL: English spring... nominal according to quality | — | | | | 10 | 0 | 0 |
| " " cast | 40 | 0 | 0 | | 60 | 0 | 0 |
| " Rails at works, according to section | 3 | 12 | 6 | | 4 | 15 | 0 |
| **Lead.** | | | | | | | |
| Spanish or soft foreign | — | | | | 9 | 7 | 6 |
| English pig, common | 9 | 8 | 9 | | 9 | 11 | 3 |
| " L.B. | — | | | | 10 | 5 | 0 |
| " sheet and bar | — | | | | 10 | 15 | 0 |
| " pipe | — | | | | 11 | 5 | 0 |
| " red | — | | | | 12 | 5 | 0 |
| " white | — | | | | 16 | 10 | 0 |
| " patent shot | — | | | | 14 | 0 | 0 |
| **Spelter.** | | | | | | | |
| Silesian ordinary brands | — | | | | 15 | 18 | 9 |
| " special brands | 16 | 0 | 0 | | 16 | 2 | 6 |
| English Swansea | 16 | 10 | 0 | | 16 | 12 | 6 |
| Sheet Zinc | 19 | 0 | 0 | | 19 | 2 | 6 |
| **Antimony.** | | | | | | | |
| Antimony | — | | | | 32 | 0 | 0 |
| **Quicksilver.** | | | | | | | |
| Flasks, 75 lbs. warrants | £ | 0 | 0 | | 5 | 19 | 0 |
| **Manganese.** | | | | | per unit. | | |
| Ore, c.i.f., U.K. ports | | | | | | | |
| 1st quality, 50 per cent. and upwards | 0 | 0 | 10½ | | 0 | 0 | 11⅝ |
| 2nd " 47 per cent. to 50 per cent. | 0 | 0 | 9½ | | 0 | 0 | 10⅜ |
| 3rd " 40 " 47 per cent. | 0 | 0 | 8 | | 0 | 0 | 10 |
| **Aluminium.** | | | | | Per lb. | | |
| 98-99¼ per cent. (guaranteed 98 per cent. min.) in ingots (1 cwt. lots) | | | | | 0 | 1 | 10 |
| do do (1 ton lots) | | | | | 0 | 1 | 9½ |
| **Nickel.** | | | | | | | |
| 98-99 per cent. guaranteed | 0 | 1 | 6½ | | 0 | 1 | 7½ |

## WEEKLY DIVIDENDS.

The following dividends have been declared since we last went to press:—

Newport Abercarn Black Vein Steam Coal, 3 per cent.

Sydney and Louisberg Coal and Rail, 6s. on Ten per Cent. Pref.

Tambuff-Kosloff Five per Cent. Bonds, 5 per cent.

Rio de Janeiro and North Six per Cent. Debentures, 21s.

Minas and Rio (Limited) Six per Cent. Debentures, 3 per cent.

Bergslagernas, 5 per cent.

North British Australasian Five per Cent. Mortgage Debentures, 5 per cent.

Atlas Investment Trust Deferred Stock, 5 per cent.

# "THE MINING JOURNAL" SHARE LIST.

**ABBREVIATIONS AND REFERENCES.**—The following are the significations of the abbreviations and references which occur in the Share List:—*Ay*, Antimony; *A*, Arsenic; *Bl*, Blende; *Bx*, Borax; *C*, Copper; *D*, Diamond; *G*, Gold; *I*, Iron; *L*, Lead; *M*, Mundic; *N*, Nitrates; *P*, Phosphates; *Q*, Quicksilver; *R*, Ruby; *S*, Silver; *S-l*, Silver-lead; *Sul*, Sulphur; *T*, Tin; and *Z*, Zinc. * in the "called up" column of British Mines, signifies that the mine is conducted on "Cost Book" principles: ‡ in the "Head Office" column of African Mines, signifies that the address given is not that of the head office, but of a sub- or transfer office and †, following the names of African mines, signifies that they are subject to the Limited Liability Law of the South African Republic.

*The following is by far the most complete and comprehensive list of mines, in whose shares business is being currently transacted, published. Additions will be made from time to time as occasion requires. Every effort is made to ensure accuracy, and Secretaries of Companies, Share dealers, and our readers generally, are cordially invited to co-operate with us to this end, by notifying us of any errors that may at any time occur. We desire it to be understood that, while our Share List will almost invariably be found correct; we do not hold ourselves responsible for any loss or inconvenience that may arise from possible inaccuracies.*

## BRITISH MINES.

| Name. | Closing Price, July 20, 1894 | Closing Price, July 13, 1894. | Par. £ s. | Latest Dividend | Called up Per Share. £ s. d. | Shares Issued. | Situation of Mine. | Head Office |
|---|---|---|---|---|---|---|---|---|
| Atlas T | — | — | 1 0 | — | 1 0 0 | 12,000 | Devon | Camborne. |
| Blue Hills CT | 2/6 7/6 | 10/- | * | 2/- May, '81 | 5 9 6 | 5,253 | Cornwall | Camborne. |
| Botallack T | 1 1¼ | 1¼ | * | — | 51 4 6 | 1,880 | Cornwall | St. Just. |
| Carn Brea T | 6 6¼ | 6¼ | * | 2/6 Dec., '93 | 21 12 5 | 6,000 | Cornwall | Carn Brea. |
| Cook's Kitchen T | 3/- 5/- | 3/9 | * | — | 38 15 1? | 4,900 | Cornwall | Camborne. |
| Cumberland L | — | — | 1 0 | 5% May, '88 | 1 0 0 | 51,988 | Cumberland | 7, Angel-court E.C. |
| Derwentwatr. CLZ | — | — | 1 0 | — | 1 0 0 | 10,050 | Cumberland | Manchester. |
| Devon Gt Cons. CA | 22/6 27/6 | 27/6 | 5 0 | 3/- May, '94 | 2 0 0 | 10,240 | Devon | 8, Finsbury-circus. |
| Dolcoath T | 64¼ 65¼ | 66 | * | 12/6 Apr., '94 | 9 12 6 | 4,700 | Cornwall | Camborne. |
| Drakewalls CTM | -/3 -/6 | -/6 | 0 5 | — | 0 2 0 | 61,856 | Cornwall | Dashwood House. |
| EastGrassington L | — | — | 1 0 | — | 1 0 0 | 19,905 | Yorkshire | Palmerston-building |
| East Pool AT | 7 7⅛ | 7⅛ | * | 1/6 June, '94 | 0 9 9 | 6,400 | Cornwall | Illogan. |
| Gawton CA | — | — | 2 10 | — | 2 7 3 | 12,000 | Devon | 20, Great St. Helens |
| Great Laxey L | 1 2 | 2 | 4 0 | 5/- Apr., '92 | 4 0 0 | 15,000 | Isle of Man | Douglas, Isl of Man |
| Green Hurth L | 1/3 1/9 | 1/9 | 1 0 | -/6 June '89 | 0 19 0 | 32,000 | Cumberland | Newcastle. |
| Halkyn L | — | — | 1 0 | 2/- June, '94 | 1 0 0 | 10,000 | Flintshire | Chester. |
| Hexworthy T | — | — | 1 0 | — | 1 0 0 | 14,634 | Devon | 6, Queen-street-place |
| Isle of Man L | — | — | 5 0 | 5/6 Sep. '93 | 5 0 0 | 14,000 | Isle of Man | Chester. |
| Killifreth T | 2¾ 3¼ xd | 3 xd | * | 2/- July, '94 | 5 11 6 | 6,000 | Cornwall | Truro. |
| Kingside LB | — | — | 1 0 | 3/- May, '92 | 1 0 0 | 15,919 | Cardiganshire | 6, Queen-street-place. |
| Lead Hills L | 12/6 17/6 | 17/6 | 6 0 | 3/- Sep. '92 | 6 0 0 | 20,000 | Lanarkshire | 30, Finsbury-circus. |
| Levant CT | — | 5¾ | * | 2/6 July, '94 | 11 9 6 | 2,500 | Cornwall | Penzance. |
| Lovell T | — | — | * | 1/3 Nov., '91 | 1 16 7 | 7,165 | Wendron | 3, Gt. Queen-st., S.W |
| Minera (New) L | — | — | 5 0 | 5/6 Mar. '90 | 5 0 0 | 9,000 | Denbighshire | Minera, N. Wales. |
| Nenthd&Tndle. LZ | -/6 1/- | 1/- | 1 0 | 6% Feb., '91 | 0 18 0 | 48,8?5 | Northumberld | Newcastle-on-Tyne |
| New Balleswidd'n T | — | — | 1 0 | — | 1 0 0 | 25,000 | Cornwall | St. Clement's Ho., E.C. |
| NewCooksKitn. TC | — | — | * | — | 10 18 3 | 4,900 | Cornwall | Camborne. |
| Pedn-an-drea T | — | — | * | — | 4 3 6 | 7,000 | Cornwall | Redruth. |
| Phoenix United TC | 1/- 3/- | 3/- | * | 1/- Mar. '90 | 7 4 6 | 10,666 | Cornwall | Liskeard. |
| Polberro T | 15/- 20/- | 27/6 | * | — | 3 7 9 | 18,000 | Cornwall | 37, Walbrook. |
| Prince of Wales TC | 2/- 3/- | 3/- | 0 10 | — | 0 8 3 | 94,287 | Cornwall | 6, Draper's-gardens. |
| So. Condurrow TC | 7/6 12/6 | 15/- | * | 3/6 Apr. '93 | 17 17 7 | 6,123 | Cornwall | 20, Great St. Helens |
| South Crofty TA | 1⅛ 1⅜ | 22/6 | * | — | 17 2 6 | 6,120 | Cornwall | Pool, Cornwall. |
| S. Frances Untd. T | 5/- 10/- | 10/- | * | — | 2 7 6 | 6,000 | Cornwall | Redruth. |
| Tincroft T | 9¾ 10¾ | | * | 2/- Apr. '94 | 15 7 6 | 6,000 | Cornwall | Carn Brea. |
| Weardale L | 7/- | 7/- | 4 0 | 1/3 Oct. '90 | 1 10 0 | 50,000 | Durham | 3, Lombard-court. |
| West Frances T | 20/- 30/- | 30/- | — | 2/6 May, '89 | 15 17 1 | 6,144 | Cornwall | Camborne. |
| West Kitty T | 5¾ 5¾ | 6 | * | 4/- Jan, '94 | 1 2 0 | 6,000 | Cornwall | 37, Walbrook. |
| Wheal Agar TA | 20/- 25/- | 17/6 | * | 2/6 Aug. '88 | 23 5 2 | 6,000 | Cornwall | Redruth. |
| Wheal Basset TC | 20/- 25/- | 20/6 | * | 10/- Apr. '88 | 12 5 0 | 6,144 | Cornwall | Redruth. |
| Wheal Friendly T | -/6 1/- | 2/- | * | — | 0 11 3 | 10,000 | Cornwall | 110, Cannon-st., E.C. |
| Wheal Grenville T | 16 17 | 16¾ | * | 3/- Feb. '94 | 18 2 0 | 6,000 | Cornwall | 7, Union-court, E.C. |
| Wheal Kitty T | 6/3 8/9 | 10/- | * | 3/- Mar. '88 | 4 5 6 | 8,590 | Cornwall | Truro. |
| Wheal Metal &F. T | ⅛ ¼ | ¼ | * | — | 0 13 9 | 10,784 | Cornwall | 79¼, Gracechurch-st. |

## AUSTRALIAN AND NEW ZEALAND MINES.

| Name. | Closing Price, July 20, 1894 | Closing Price, July 13, 1894. | Par. | Latest Dividend | Called up Per Share. | Shares Issued. | Situation of Mine. | Head Office |
|---|---|---|---|---|---|---|---|---|
| Achilles Gld Fld. | 2/6 3/6 | 3/6 | 1 0 | — | 1 0 0 | 80,307 | New Zealand | 3, Church Pas., E.C. |
| Aladdins Lamp G | 16/3 18/9 | 18/9 | 1 0 | 1/- Apr. '94 | 1 0 0 | 100,000 | N S Wales | 4-6, Throg. Avenue. |
| Amana (Went.) G | — | — | 1 0 | — | 1 0 0 | 75,000 | N. S. Wales | 5, Throg. Avenue. |
| Amana (Went.) G | — | — | 1 0 | — | 0 12 6 | 25,000 | N. S. Wales | 5, Throg. Avenue. |
| Anglo-Saxon G | — | — | 1 0 | 2/- July, '89 | 1 0 0 | 51,000 | Queensland | 4, Lombard-court. |
| Australasian G | 1/3 1/9 | 1/9 | 1 0 | -/6 Mar., '92 | 1 0 0 | 210,000 | Queensland | 6, Queen-st. place |
| Australian C | — | — | 20 0 | 1/6 Aug. '93 | 7 10 0 | 18,315 | So. Australia | 15, Old Jewry Chbrs. |
| Aus. Bro. Hill Con. | 1/6 2/- | 2/6 | 1 0 | 1/- June, '91 | 1 0 0 | 537,138 | N. S. Wales | Winchester House. |
| Baker's Creek G | 22/6 25/- | 25/- | 1 0 | 1/- June '94 | 0 17 6 | 100,000 | N. S. Wales | Hillgrove, N.S.Wales |
| Bayley's Reward G | 15/- 17/- xd | 17/- | 1 0 | -/4 July, '94 | 1 0 0 | 480,000 | W. Australia | 2, Met. Ex. Buildings |
| Blue Spur & G. G. | -/6 1/- | 1/- | 1 0 | — | 1 0 0 | 80,098 | New Zealand | 6, Gt. St. Helens' |
| Bonnie Dundee G | 3/3 3/9 | 3/9 | 1 0 | — | 0 18 0 | 120,000 | Queensland | 3-5, Gracechurch-st |
| Brilliant G | 7/- 9/- | 9/- | 2 0 | -/3 July, '94 | 2 0 0 | 250,000 | Queensland | Charters Towers. |
| Brilliant Block G | 1¼ 1⅜ | 1⁵⁄₁₆ | 2 0 | -/9 July, '94 | 2 0 0 | 250,000 | Queensland | 3, Gracechurch-st. |
| Brilliant, St. Geo. | 11/- 13/- | 12/- | 0 10 | — | 0 6 3 | 72,000 | Queensland | Charters Towers. |
| Brit. Brok. Hill S | 3/6 4/6 | 4/6 | 5 0 | — | 5 0 0 | 240,000 | N. S. Wales | Abchurch Chambers |
| Broken Hill Prop. | 2⁹⁄₁₆ 2¹¹⁄₁₆ | 2⅝ | 0 8 | 1/- June '94 | 0 8 0 | 960,000 | N. S. Wales | Abchurch Chambers |
| Brkn. Hill P. Bl. 10 | — | — | 10 0 | 1/- Feb. 94 | 9 13 0 | 100,000 | N. S. Wales | 117, Leadenhallst. EC‡ |
| Brkn. Hill P. Bl. 14 | — | — | 5 0 | — | 5 0 0 | 10,000 | N. S. Wales | 117, Leadenhallst. EC |
| Carrington G | 1/3 1/9 | 2/- | 12/6 | — | 0 12 6 | 100,007 | Queensland | 9, Tokenhouse Yard. |
| Craven's Cal. | 4/3 4/9 | 4/- | 0 6 | -/3 June '94 | 0 4 8 | 100,000 | Queensland | 30-1, S. Swithin's-le. |
| Croydon King Blk. | | | 0 5 | — | 0 5 0 | 60,000 | N. Queensland | Leadenhall Blg. E.C. |
| Cumbrind (New) G | -/9 1/3 | 1/3 | 1 0 | 2/6 Dec. '87 | 1 0 0 | 184,890 | Queensland | Blomfield House E.C. |
| DayDawn B.&W. G | 5/3 5/9 | 5/9 | 1 0 | -/6 Mar. 93 | 1 0 0 | 498,400 | Queensland | 3-5, Gracechurch-st. |
| Day Dawn P. C. G | 3/- 3/6 | 3/3 | 1 0 | -/6 Apr. '92 | 1 0 0 | 490,000 | Queensland | Winchester Ho., E.C. |
| Eaglehawk G | 1/- 1/6 | 1/3 | 1 0 | — | 0 19 3 | 120,000 | Victoria | 31, Lombard-street. |
| Eng. & Aus. Cop. Cu | ⅜ | ⅜ | 2 0 | 2% 1883 | 1 17 6 | 70,000 | So. Australia | 136, Palmerston-bldgs |
| Eng. & Aus 6% Deb. | — | — | 50 0 | 6% July, '94 | 50 0 0 | 700 | So. Australia | 136, Palmerston-bldgs |
| Etheridge G | — | — | 0 5 | — | 0 5 0 | 324,290 | Queensland | 6-7, Queen-street-pl. |
| Frederick the Gt G | — | — | 1 0 | — | 1 0 0 | 125,000 | Victoria | St. George's House. |
| Glenrock | 1/9 2/3 | 2/3 | 1 0 | — | 0 19 6 | 225,000 | N. Zealand | 3-5, Queen-st. E.C. |
| Golden Gate G | 1/3 1/9 | 1/9 | 0 10 | — | 0 10 0 | 150,000 | Queensland | 9, Tokenhouse Yard. |
| Harrietville G | — | — | 1 0 | -/6 July, '90 | 1 0 0 | 146,330 | Victoria | 6-7, Queen-street-pl. |
| Kaboonga G | 1/- 1/6 | 1/9 | 0 10 | — | 0 10 0 | 500,000 | Queensland | 30, St. Swithin's-lane |
| Kangarilla S | 2/- 2/6 | 2/6 | 1 0 | — | 1 0 0 | 88,275 | So. Australia | 68, Coleman-street. |
| Kapanga G | 2/6 3/- | 3/6 | 1 0 | -/6 Jan. '81 | 0 19 0 | 250,000 | N. Zealand | 9, New Broad-street |
| Kilkivan | 1/6 2/- | 2/- | 1 0 | — | 1 0 0 | 81,392 | Queensland | 4, Coleman-street. |
| Midas G. F. G | — | — | 1 0 | — | 1 0 0 | 180,000 | Victoria | 32, Poultry, E.C. |
| Mills' Day Dawn G | 1⁵⁄₁₆ 1⁵⁄₁₆ | 1¼ xd | 1 0 | -/6 July '94 | 0 15 9 | 300,000 | Queensland | 3, Gracechurch-st. |
| Moruya GS | — | — | 1 0 | — | 1 0 0 | 53,235 | N. S. Wales | 16, St. Helen's-place |
| Mosman G | 2/6 3/6 | 3/6 | 1 0 | -/6 May, '94 | 1 0 0 | 185,000 | Queensland | 3-5, Gracechurch-st. |
| Mt. Leyshon G | -/6 1/- | 1/3 | 1 0 | -/6 Dec. '90 | 1 0 0 | 157,989 | Queensland | 7, Draper's-gardens. |
| Mountain Maid G | 1/- 2/- | 2/- | 0 10 | — | 0 6 3 | 58,000 | Queensland | Leadenhall Bldgs. |
| Mount Morgan G | 2¼ 2⅜ | 2⁵⁄₁₆ | 1 0 | -/6 July '94 | 0 17 6 | 1,000,000 | Queensland | 50, Lime-street. |
| Mt. Shamrock GB | — | — | 1 0 | — | 1 0 0 | 275,000 | Queensland | 9, Tokenhouse-yard. |
| Mount Zeehan | -/6 1/- | 1/3 | 1 0 | — | 1 0 0 | 193,257 | Tasmania | Mansion Ho. Cham. |
| N. Smithfield G | — | — | 0 10 | 1/- July, '94 | 0 10 0 | 48,000 | Gympie | Queensland. |
| New Queen G | 6/6 7/- | 7/3 | 1 0 | -/6 Apr., '94 | 0 19 6 | 158,915 | Queensland | 30, St. Swithin's-la. |
| No. 7 N. E. Queen | -/6 1/- | 1/- | 0 10 | -/3 Sept. '92 | 0 8 9 | 96,000 | Queensland | 30, St. Swithin's-ln. |
| Port Phillip G | — | — | 0 5 | — | 0 5 0 | 200,000 | Victoria | 57, Moorgate-st., E.C. |
| Queen's Bthdy Un | — | — | 1 0 | — | 0 10 0 | 75,000 | Victoria | 7-8, Gt. Wnchster St. |
| Queens. Smelting | ⅛ ⅛ | ⅛ | 0 | — | 1 0 0 | 36,244 | Queensland | 9, Tokenhouse Yard. |
| Scottish Australian | ⅞ 1 | 1⁵⁄₁₆ | 1 0 | 4-5d. May, '94 | 1 0 0 | 200,000 | N.S. Wales | Winchester Ho. E.C. |
| Sunburst | — | — | 0 10 | -/6 Mar. '92 | 0 10 0 | 150,000 | Queensland | 9, Tokenhouse Yard. |
| Tasmanian Crown | — | — | 1 0 | — | 1 0 0 | 125,990 | Tasmania | 8, Old Jewry, E.C. |
| Tipperary | — | — | 1 0 | — | 1 0 0 | 35,000 | N. Zealand | 3-5, Queen-st., E.C. |
| True Blue | — | — | 1 0 | -/3 July, '94 | 1 0 0 | 53,000 | Australia | Leadenhall Blg. E.C. |
| Victoria Associatn. | — | — | 1 0 | -/6 July, '94 | 1 0 0 | 144,000 | Char. Towers | 6, Crosby-square |
| Victory G | 5/- 7/- | 7/- | 0 5 | -/6 Mar., '94 | 0 5 0 | 200,000 | Queensland | 32, Gresham-st., E.C. |
| Waihi G | 1⅜ 1¾ | 1¾ | 1 0 | 1/- June '94 | 1 0 0 | 150,000 | New Zealand | 11, Abchurch-ln. E.C. |
| Wentworth Ord. G | 3/- 4/- | 4/- | 1 0 | — | 1 0 0 | 350,000 | N. S. Wales | 4-6, Throgmort. Av. |
| Went. Priority | 7/- 9/- | 10/- | 1 0 | 6/- Jan. '93 | 1 0 0 | 150,000 | N. S. Wales | 4-6, Throgmort. Av. |
| W. Argentine G | 1/- 1/3 | 1/9 | 1 0 | — | 0 19 0 | 150,000 | N. Zealand | 3-5, Queen-street. |
| W. Australian G.F. | 16/3 18/9 | 18/9 | 1 0 | — | 1 0 0 | } 65,000 | W. Australia | 28-29, S. Swithin's-ln. |
| W. Australian G.F. | 2/- 4/-pm | 4/-pm | 1 0 | — | 0 4 0 | | W. Australia | 28-29, S. Swithin's-ln |

## INDIAN AND ASIATIC MINES.

| Name. | Closing Price, July 20, 1894 | Closing Price, July 13, 1894. | Par. | Latest Dividend | Called up Per Share. | Shares Issued. | Situation of Mine. | Head Office |
|---|---|---|---|---|---|---|---|---|
| Asia Minor Pref. St. | — | — | 0 10 | — | 0 10 0 | 47,430 | Asia Minor | 2, Metal Ex. Bldgs. |
| Do. Ord. | — | — | 0 10 | — | 0 9 0 | 51,584 | Asia Minor | 2, Metal Ex. Bldgs. |
| Balaghat Mysore G | 5/6 6/6 | 7/- | 1 0 | — | 0 17 0 | 160,000 | India | 6-7, Queen-street-pl. |
| Burma Ruby R | 3/6 4/6 | 4/6 | 1 0 | — | 0 17 0 | 300,000 | Burmah | Suffolk House, E.C. |
| Champion Reef G | 3¹¹⁄₁₆ 3¹³⁄₁₆ | 3¹³⁄₁₆ | 1 0 | — | 1 0 0 | 200,000 | India | 6-7, Queen-street-pl |
| Colar Central G | -/3 -/6 | -/6 | 1 0 | — | 1 0 0 | 200,000 | India | Dashwood Ho., E.C. |
| Coromandel G | 1/- 2/- | 2/- | 1 0 | — | 0 17 6 | 95,000 | India | 6-7, Queen-st.-place. |
| Devála Moyar G | — | — | 1 0 | — | 1 0 0 | 200,000 | India | 34, Nicholas-lane. |
| Gemming&Mining | — | — | 2 0 | — | 1 7 6 | 19,594 | Ceylon | 183, Gresham House. |
| GoldFldsMysore G | 20/- 21/3 | 22/6 | 1 0 | 1/- July '93 | 1 0 0 | 220,000 | India | 6-7, Queen-street pl. |
| Gold Flds Siam G | — | — | 1 0 | — | 1 0 0 | 150,000 | Siam | 19, St. Swithin's-lane. |
| Hyderabad Dec. | — | — | 10 0 | — | 10 0 0 | 116,000 | Deccan | 16, St. Helen's-place |
| Kempinkote GdFd | 2/3 3/9 | 3/6 | 0 5 | — | 0 3 0 | 665,473 | India | 6-7, Queen-st.-place. |
| Mysore G | 2⁵⁄₁₆ 2⁹⁄₁₆ | 2½ | 1 0 | 2/- July, '94 | 1 0 0 | 250,000 | India | 6-7, Queen-street pl. |
| My. Harnhalli G | 1/9 2/3 | 2/3 | 1 0 | — | 0 12 0 | 100,000 | India | 2, East India Avenue |
| Mysore Reefs G | 13/- 14/- | 14/6 | 1 0 | — | 0 19 6 | 134,788 | India | 6-7, Queen-street-pl. |
| Mysore West G | 7/- 7/6 | 7/9 | 1 0 | — | 1 0 0 | 127,408 | India | Dashwood Ho., E.C. |
| Mysore Wynaad G | 3/- 3/6 | 3/3 | 1 0 | — | 1 0 0 | 250,000 | India | Dashwood Ho., E.C. |
| Nerbudda Coal &In | ⅛ ¼ | ¼ | 3 0 | — | 2 11 0 | 40,639 | India | 213, Gresham House |
| Nine Reefs G | 2/- 2/6 | 2/6 | 0 10 | — | 0 10 0 | 50,000 | India | 6-7, Queen-street-pl |
| Nine Reefs | 1/- 1/6 | 1/6 | 0 10 | — | 0 9 0 | 200,000 | India | 6-7, Queen-street-pl |
| Nundydroog G | 27/6 30/- | 27/6 | 1 0 | 1/- Mar. '94 | 1 0 0 | 200,000 | India | 6-7, Queen-street-pl. |
| Ooregum (Df. O.) C | 3⅛ 3¾ | 3⁹⁄₁₆ | 1 0 | 4/6 July, '94 | 1 0 0 | 146,000 | India | 6-7, Queen-street-pl. |
| Do. (10% Pref.). | 3¾ 4 | 4 | 1 0 | 4/6 July, 94 | 1 0 0 | 95,536 | India | 6-7, Queen-street-pl. |
| Do. (10% Pref.). | 3 3¼ | 3¼ | 1 0 | 4/6 July '94 | 0 5 0 | 24,464 | India | 6-7, Queen-street-pl. |
| Pahang Corpn. | 7/- 8/- | 8/- | 1 0 | 15% Apr. '89 | 1 0 0 | 203,070 | Malay Penin. | Blomfield Ho., E.C. |
| Pahang Kabang | — | — | 1 0 | — | 1 0 0 | 394,760 | Malay Penin. | 4a, Jeffrey's sq., E.C. |
| South E. Mysore G | 4/3 4/9 | 5/- | 0 4 | — | 0 3 9 | 134,623 | India | 6-7, Queen-street-r. |

## EUROPEAN MINES.

| Name. | Closing Price, July 20, 1894 | Closing Price, July 13, 1894. | Par. £ s. | Latest Dividend. | Called up per Share. £ s. d. | Shares Issued. | Situation of Mine. | Head Office. |
|---|---|---|---|---|---|---|---|---|
| Alamillos L | ⅜ ⅝ | 12/6 | 2 0 | -/3 Sept. '92 | 2 0 0 | 35,000 | Spain | 6, Queen-street-place |
| Avala Q | ⅛ | ⅛ | 1 0 | 1/- May '93 | 1 0 0 | 150,047 | Servia | 4, Tokenho. Bldgs. |
| Consett Ore | 5⅛ 5⅜ | 5⅜ | 1 0 | 42½ Feb. '94 | 1 0 0 | 55,200 | Spain | 19, Grey-st., N'castle. |
| English Cr. Spelter | — | — | 1 0 | 5% Dec. '92 | 1 0 0 | 84,000 | Lombardy | 9, Queen-street-place |
| Fortuna L | 10/- 15/- | 15/- | 2 0 | -/6 Sept. '92 | 2 0 0 | 25,000 | Spain | 6, Queen-street-place |
| Libiola C | 2⅝ 3⅛ | 3⅛ | 5 0 | 5/- Mar. '94 | 5 0 0 | 50,400 | Italy | Dashwood Ho., E.C. |
| Linares L | 2½ 3 | 3 | 3 0 | 4/- May, '94 | 3 0 0 | 14,998 | Spain | 6, Queen-street-place |
| Marbella I | 2¼ 2¾ | 2¾ | 10 0 | 8/- Mar. '93 | 10 0 0 | 25,000 | Spain | 78, Queen Victoria-st. |
| Mason & Barry C | 2¼ 2¾ | 2¾ | 5 0 | 2/- May. '94 | 5 0 0 | 185,172 | Portugal | 87, Cannon-street. |
| Oscar G | — | — | 5 0 | — | 0 4 6 | 117,240 | Norway | 6A, Austin Friars. |
| Pestarena G | 2/3 2/9 | 2/9 | 3 0 | — | 3 0 0 | 67,809 | Italy | 6-7, Queen-street-pl. |
| Pontgibaud L | — | — | 20 0 | 11/5 Dec. '93 | 20 0 0 | 14,000 | France | 6-7, Queen-street-pl. |
| Rio Tinto C | 12¹⁵⁄₁₆ 13¹⁄₁₆ | 13¼ | 10 0 | 7/- May, '94 | 10 0 0 | 325,000 | Spain | 30, St. Swithin's-lane |
| Do. (Mort. Bonds) | 102 104 | 104 | 100 0 | 5% Apr. '94 | 100 0 0 | 2,158,960 | Spain | 30, St. Swithin's-lane |
| Do. (2nd do.) | 101 103 | 103 | 100 0 | 5% Apr. '94 | 100 0 0 | 1,127,180 | Spain | 30, St. Swithin's-lane |
| Ripanji SQ | 5/- 7/- | 7/- | 1 0 | — | 0 19 0 | 95,000 | Servia | 120, Bishopsgt-st, Wn. |
| Tharsis C Sul | 4⅛ 4⅜ | 4½ | 2 0 | 12½% Mar. '94 | 2 0 0 | 625,000 | Spain | Glasgow. |
| West Prus Pre. pref | — | — | 10 0 | 8% June '94 | 10 0 0 | 365 | Germany | Walbrook Ho., E.C. |
| West Prussian Pre. | — | — | 10 0 | 8% June, '94 | 10 0 0 | 5,450 | Germany | Walbrook Ho., E.C. |
| West Prussian Or. | — | — | 10 0 | 8% June, '94 | 10 0 0 | 14,050 | Germany | Walbrook Ho., E.C. |
| Wohlfahrt L | — | — | 1 0 | 3% June, '94 | 1 0 0 | 99,634 | Prussia | 17, Victoria-st., S.W. |
| Wohlfahrt L | — | — | 1 0 | 3% June, '94 | 0 10 0 | 9,090 | Prussia | 17, Victoria-st., S.W. |

## NORTH AMERICAN MINES.

| Name. | Closing Price, July 20, 1894 | Closing Price, July 13, 1894. | Par. | Latest Dividend. | Called up per Share. | Shares Issued. | Situation of Mine. | Head Office. |
|---|---|---|---|---|---|---|---|---|
| Alaska Mexican G | — | — | $5 | — | $5 | 160,000 | Alaska | 30, St. Swithin's-ln. |
| Alaska Treadwell G | 2¹⁵⁄₁₆ 3¹⁄₁₆ | 3 xd | $25 | 75c. June, '94 | $25 | 200,000 | Alaska | 30, St. Swithin's-ln. |
| Almada and T. S | -/3 -/9 | -/9 | 2/6 | — | 0 2 6 | 351,008 | Mexico | 6, Queen-street-place |
| American Belle S | ¹⁄₁₆ ³⁄₁₆ | 3/3 | 1 0 | -/6 Mar. '91 | 1 0 0 | 398,890 | Colorado | 25A, Old Broad-street |
| Anglo Mexican | — | — | 5 0 | 3/- Jan. '90 | 5 0 0 | 74,850 | Mexico | 23, College Hill. |
| Arizona (Pref.) Cu | — | — | 4 0 | — | 4 0 0 | 158,920 | Arizona | 74, Geo.-st., Edinbor' |
| Do. 10% Deben. | — | — | 100 0 | 7% May '94 | 100 0 0 | 2,660 | Arizona | 74, Geo.-st., Edinbor' |
| Big Creek Ay. | — | — | 1 0 | 1/- Dec. '91 | 1 0 0 | 50,000 | Nevada | 2, Pancras-lane, E.C. |
| California G | — | — | 0 10 | -/6 May 90 | 0 8 9 | 129,571 | Colorado | St. George's Ho. E.C. |
| Canadian Phos. P | — | — | 1 0 | -/6 Nov. '90 | 1 0 0 | 73,334 | Canada | 155, Fenchurch-st. |
| Chiapas | — | — | 1 0 | — | 1 0 0 | 211,510 | Mexico | 33, Broad-st. Av. E.C. |
| Colorado Boy S | — | — | 1 0 | — | 1 0 0 | 112,491 | Colorado | Abchurch-chbrs. E.C. |
| Cortes | — | — | 1 0 | 3% Feb. '93 | 1 0 0 | 300,000 | Nevada | Suffolk House, E.C. |
| Decatur St. | — | — | 1 0 | — | 1 0 0 | 32,500 | Colorado | 35, Queen Victoria-st. |
| Do. (Pref.) | — | — | 1 0 | — | 1 0 0 | 12,500 | Colorado | 35, Queen Victoria-st. |
| De Lamar GS | 18/6 19/6 | 19/6 | 1 0 | 1/- June '94 | 1 0 0 | 400,000 | Idaho | 6, Draper's-gardens. |
| Dickens Custer GS | -/1½ | -/3 | 1 0 | — | 0 19 9 | 420,000 | Idaho | Winchester Ho. E.C. |
| Elkhorn S | 11/- 12/- | 12/- | 1 0 | -/9 June, '94 | 1 0 0 | 175,007 | Montana | 6, Draper's-gardens. |
| Emma S | -/2 -/4 | -/6 | 0 5 | — | 0 5 0 | 403,618 | Utah | 15, Geo-st, Mansn. Ho |
| Flagstaff S | — | — | 1 0 | — | 0 18 3 | 240,000 | Utah | Dashwood Ho., E.C. |
| Garfield GS | — | — | 1 0 | -/6 Dec. '88 | 0 19 6 | 98,185 | Nevada | Suffolk House, E.C. |
| Gen. Mining Assoc. | 7 7⅛ | 7⅛ | 8 0 | 15/- Apr. '94 | 8 0 0 | 27,469 | Nova Scotia | Blomfield Ho., E.C. |
| Golden Feather G | 7/- 8/- | 9/- | 1 0 | — | 1 0 0 | 180,000 | California | St. Stephens Cs E.C. |
| Golden Gate | 5/- 6/- | 6/- | 1 0 | — | 0 19 6 | 79,600 | California | St. Stephens Cs E.C. |
| Golden Leaf G | -/6 1/- | -/9 | 1 0 | — | 1 0 0 | 300,259 | Montana | 8, Draper's Gardens. |
| Golden Valley G | — | — | 1 0 | — | 1 0 0 | 55,507 | Colorado | 15, Angel Court. |
| Harquahala G | 8/- 9/- xd | 9/- | 1 0 | -/9 June '94 | 1 0 0 | 300,000 | Arizona | 6, Draper's Gardens. |
| Holcomb Valley G | -/4½ -/7½ | -/9 | 0 5 | — | 0 5 0 | 540,000 | California | 14, Cornhill. E.C. |
| Idaho GS | 1/1½ 1/4½ | 1/6 | 1 0 | — | 0 4 8 | 143,439 | Idaho | 140, Leadenhall-st. |
| Jackson Goldfields | — | — | 5 0 | — | 0 5 0 | 408,635 | California | 11, Poultry, E.C. |
| Jay Hawk G | 5/- 6/- | 6/6 | 1 0 | -/6 Dec. '92 | 1 0 0 | 285,000 | Montana | Dashwood House. |
| Kohinoor "B" GS | — | — | 1 0 | -/6 June. '81 | 1 0 0 | 112,901 | Colorado | Blomfield Ho., E.C. |
| La Plata S | -/3 -/6 | -/6 | 0 5 | 1/3 Oct. '82 | 0 4 3 | 405,000 | Colorado | 11, Poultry, E.C. |
| Maid of Erin | — | — | 1 0 | 4c. pshMar. '94 | 1 0 0 | 575,000 | Colorado | 43, Threadneedle-st. |
| Mammoth Gold | -/3 -/6 | -/6 | 1 0 | — | 1 0 0 | 400,000 | Pinal Arizona. | 257, Winchester Ho. |
| Mesq. d'l Oro (P) G | ⅛ 1 | 1 | 5 0 | — | 5 0 0 | 10,000 | Mexico | Dashwood Ho., E.C. |
| Mesq. d'l Oro (D) G | ⅛ ⅜ | ⅜ | 5 0 | — | 5 0 0 | 10,000 | Mexico | Dashwood Ho., E.C. |
| Montana | 13/- 14/- | 13/9 | 1 0 | 5% April '91 | 0 19 0 | 657,158 | Montana | Gresham House, E.C. |
| New Colorado | — | — | 1 0 | — | 0 17 0 | 65,000 | Colorado | Abchurch Cham. E.C. |
| N. Consolidated SC | — | — | 0 5 | — | 0 3 6 | 248,576 | Nevada | 15, Angel-court, E.C. |
| N. Gold Hill G | — | — | 1 0 | — | 0 19 9 | 191,045 | N. Carolina | 15, George-st., E.C. |
| New Guston S | 16/6 18/6 | 19/- | 1 0 | 1/- Oct. '92 | 1 0 0 | 110,000 | Colorado | 25A, Old Broad-st. |
| New London | — | — | 2/6 | — | 0 2 6 | 327,816 | New Carolina | 55, Bishopsgt.-st. Wn |
| N. Hoover Hill G | — | — | 0 10 | -/9 Dec. '85 | 0 10 0 | 120,000 | N. Carolina | Langthorne Ho., E.C. |
| New Vancouver | ⅜ ⅜ | ⅜ | 1 0 | 3% May, '94 | 1 0 0 | 215,000 | Brit. Columbia | 12, Old Jewry Chm. |
| Palmarejo GS | -/9 1/3 | 1/6 | 1 0 | — | 1 0 0 | 418,888 | Mexico | 4, Copthall-buildings |
| Pinos Altos (N) GS | 5/6 6/6 | 7/- | 1 0 | -/6 Mar. '90 | 1 0 0 | 160,000 | Mexico | 110, Cannon-street. |
| Pittsbg Con. (N) G | — | — | 1 0 | 1/6 Mar. '88 | 1 0 0 | 77,147 | Nevada | Suffolk House, E.C. |
| Poorman Con. | 3/- 4/- | 4/- | 0 5 | — | 0 5 0 | 273,948 | Idaho | 5, Copthall-bgs. E.C. |
| Red Mountain S | — | — | 1 0 | — | 1 0 0 | 46,686 | Colorado | 11, Poultry, E.C. |
| Richmond GSL | 7/- 9/- | 9/- | 5 0 | 1/- Sep. '93 | 5 0 0 | 54,000 | Nevada | 44, Coleman-street. |
| Ruby GSL | — | — | 0 5 | — | 0 5 0 | 221,371 | Nevada | 22 St. Mary Axe. |
| Sierra Buttes G | 7/- 9/- | 10/- xd | 2 0 | -/6 Apr. '94 | 2 0 0 | 122,500 | California | 138, Leadenhall-st. |
| Do. Plumas Eur. G | 12/6 15/- xd | 15/- xd | 2 0 | -/9 Apr. '94 | 2 0 0 | 140,265 | California | 138, Leadenhall-st. |
| Springdale G | 1/3 1/9 | 2/3 | $1 | 16⅔% Dec. '92 | $1 | 1,000,000 | Colorado | 20, Abchurch Lane. |
| Twin Lake Placers | — | — | 1 0 | 1/3 Mar. '94 | 1 0 0 | 24,564 | Colorado | 5, Lawrence P. Hl. E.C. |
| United Mexican S | 1/- 1/6 | 1/6 | 1 0 | 2/6 May, '87 | 1 0 0 | 906,654 | Mexico | 3, Gt. Winchester-st. |

## SOUTH AND CENTRAL AMERICAN MINES.

| Name. | Closing Price, July 20, 1894 | Closing Price, July 13, 1894. | Par. | Latest Dividend. | Called up per Share. | Shares Issued. | Situation of Mine. | Head Office. |
|---|---|---|---|---|---|---|---|---|
| Antio. (Pref.) G.S. | — | — | 1 0 | -/6 Mar. '90 | 1 0 0 | 22,823 | Colombia | 184, Gresham Ho. |
| Antioquia (ordiny) | — | — | 1 0 | — | 1 0 0 | 42,453 | Colombia | 184, Gresham Ho. |
| Callao Bis G | -/6 1/- | 1/3 | 1 0 | — | 1 0 0 | 316,248 | Venezuela | 60, Old Broad-street |
| Camarones C | — | — | 2 0 | — | 2 0 0 | 67,000 | Chili | 123, Bishopsgt. Wn. |
| Caratal G | -/4½ -/7½ | -/6 | 2/6 | — | 0 2 4 | 1,330,003 | Venezuela | 57, Moorgate-st. E.C. |
| Colon G | -/3 -/6 | -/6 | 1 0 | — | 1 0 0 | 200,000 | Colombia | 5, Copthall-bdgs., E.C. |
| Colorado Nit. N | 2¾ 3¼ | 3⅛ xd | 5 0 | 4% June, '94 | 5 0 0 | 32,000 | Chili | 12, King-st., Liverp'l. |
| Colombia G | — | — | 20 0 | 9/6 June '94 | 20 0 0 | — | Venezuela | Ciudad, Bolivar. |
| Colombian Hy. G | 13/- 14/- | 13/- | 1 0 | 1/- April '94 | 1 0 0 | 75,000 | Colombia | 10, Blomfield-street, |
| Copiapo C | 1⁹⁄₁₆ 1¹¹⁄₁₆ xd | 1¹¹⁄₁₆ xd | 2 0 | 1/6 June '94 | 2 0 0 | 100,000 | Chili | Dashwood House, E.C. |
| Darien G | — | — | 1 0 | — | 1 0 0 | 71,359 | Colombia | Manchester. |
| Don Pedro G | 3/6 4/- | 4/3 | 1 0 | — | 1 0 0 | 133,102 | Brazil | 24-5, Devonsh. CsE.C. |
| El Callao G | 12/6 17/6 | 20/- | 5 0 | 2 frs. Nov. '90 | 5 0 0 | 257,600 | Venezuela | 8, Bishopsgt.-st, Wn. |
| Frontino & B. G | 20/- 22/- xd | 22/- xd | 1 0 | 1/3 June, '94 | 1 0 0 | 128,662 | Colombia | 184, Gresham House. |
| Glenrock G | 1/9 2/3 | 2/3 | 1 0 | — | 0 18 6 | 199,948 | Argen. (& Ind) | 3-5, Queen-street, E.C. |
| Glenrock (Pref.) | — | — | 1 0 | — | 0 16 0 | 16,232 | Argen. (& Ind) | 3-5, Queen-street, E.C. |
| Gravel G | 4/6 5/6 | 5/6 | 1 0 | — | 0 19 6 | 100,000 | Colombia | 10, Blomfield-street. |
| Guadalupe | 3/6 5/- | 5/- | 1 0 | — | 1 0 0 | 120,000 | Honduras | 11A, Unionct. Old Brdst |
| Huanchaca S | — | — | 5 0 | 3/9 Oct., '93 | 5 0 0 | 320,000 | Bolivia | 10, Avnu. d Alma, Paris |
| Javali G | — | — | 0 2 | 8⅓% '91 | 0 2 0 | 105,234 | Nicaragua | 139, Cannon-street. |
| Julia Nit. N | — | — | 5 0 | — | 5 0 0 | 30,000 | Chili | 79¼, Gracechurch-st. |
| Lautaro N | 4¾ 5 | 5¼ | 5 0 | 5/- Jan. '94 | 5 0 0 | 55,000 | Chili | 70, Gracechurch-st. |
| Liverpool N | 9⅛ 10⅛ | 10⅛ | 5 0 | 10/- Feb. '94 | 5 0 0 | 22,000 | Chili | Liverpool. |
| Loma G | -/6 1/- | 1/3 | 1 0 | — | 1 0 0 | 300,000 | Colombia | 5, Copthall-building. |
| London Nit. N | 1¼ 1¾ | 1¾ | 3 0 | 3/4¾ Nov. '89 | 5 0 0 | 10,000 | Chili | 9, Gracechurch-st. |
| LondonNit. (Pref.) | 2¾ 3¼ | 3¼ | 5 0 | 5/- May, '94 | 5 0 0 | 22,000 | Chili | 9, Gracechurch-st. |
| Macate | 1/6 2/- | 2/- | 0 2 | — | 0 2 0 | 200,000 | Peru | 11, Old Broad-st, E.C. |
| Orita G | 2/- 3/- | 3/- | 1 0 | 1/- April '89 | 1 0 0 | 30,000 | Colombia | 10, Blomfield-street. |
| Ouro Preto G | — | — | 1 0 | — | 0 18 6 | 80,000 | Brazil | 6, Queen-street-place |
| Panulcillo C | — | — | 2 0 | 1/- Nov. '89 | 2 0 0 | 112,500 | Chili | 23, Great St. Helens. |
| Primitiva N | 3⅛ 3⅜ | 3¼ | 5 0 | 20% Oct. '89 | 5 0 0 | 40,000 | Chili | Liverpool. |
| Quebrada C | 5/- 7/6 | 11/3 | 3 0 | 5% Mar. '92 | 3 0 0 | 241,956 | Venezuela | 38, Nicholas Lane. |
| Rosario N | 4¾ 5¼ | 5¼ | 5 0 | 3/6 Feb. '94 | 5 0 0 | 120,000 | Chili | 57¼, OldBroad-street. |
| Rosario (5% Deb.) | 103 105 | 105 | 100 0 | 5% Apr. '94 | 100 0 0 | 4,750 | Chili | 57¼, OldBroad-street. |
| St. John del Rey G | 21/- 23/- | 23/- | 1 0 | 10% June '82 | 1 0 0 | 272,435 | Brazil | 28, Tower-chmbrs, E.C. |
| San Donato N | 1⅛ 2 | 1⅜ | 5 0 | — | 5 0 0 | 32,000 | Chili | 12, King-st., Liverp'l. |
| San Jorge N | 5⅛ 6 | 6 | 5 0 | 10/- May '94 | 5 0 0 | 76,000 | Chili | 9, Gracechurch-st. |
| San Pablo N | 3¼ 3¾ | 3¾ | 5 0 | 7½% Apr., '94 | 5 0 0 | 32,000 | Chili | 3, Gracechurch-st. |
| Santa Barbara G | — | — | 0 10 | 1/3 Dec. '86 | 0 10 0 | 60,000 | Brazil | Liverpool |
| Santa Luisa N | — | — | 10 0 | 10/- Sep. '89 | 10 0 0 | 22,000 | Chili | 70, Gracechurch-st. |
| Santa Rita N | 3⅛ 3⅝ | 3⅝ | 5 0 | 15% Apr., '94 | 5 0 0 | 20,000 | Chili | DashwoodHouse, E.C. |
| San Sebastian N | 1⅜ 2¼ | 2¼ | 5 0 | 1/6 May '94 | 5 0 0 | 29,000 | Chili | DashwoodHouse, E.C. |
| Segovia G | — | — | 5 0 | — | 0 4 0 | 160,000 | Colombia | 5, Copthall-buildings |
| S cre Pref. G | — | — | 1 0 | 10% July '94 | 0 15 0 | 840 | Colombia | 23, St. Swithin's ln. |
| Sucre Ord. G | — | — | 1 0 | 8% July '94 | 1 0 0 | 10,000 | Colombia | 23, St. Swithin's ln. |
| Tetuan G | — | — | 1 0 | — | 0 19 6 | 200,000 | Colombia | 5, Copthall-buildings |
| Tolima "A" S | 8⅛ 9 | 8 xd | 5 0 | 10% June '94 | 5 0 0 | 14,000 | Colombia | 18, Finsbury-circus. |
| Do. "B" S | 7¼ 7⅜ | 7 xd | 5 0 | 10% June '94 | 5 0 0 | 6,000 | Colombia | 18, Finsbury-circus. |
| Vic. & Altam.ra | — | — | 0 5 | — | 0 5 0 | 200,000 | Venezuela | Broad-st. Avenue. |
| West Indian G | — | — | 0 5 | — | 0 5 0 | 700,000 | San Domingo | 49, Queen Victoria-st. |
| Zaruma G | — | — | 0 5 | — | 0 5 0 | 261,422 | Ecuador | 1, Gt. Winchester-st. |

## "THE MINING JOURNAL" SHARE LIST (AFRICAN MINES).

| Name. | Closing Price, July 20, 1894. | Closing Price, July 13, 1894. | Par. £ s. | Latest Dividend. | Called up Per Share. £ s. d. | Shares Issued. | Situation of Mine. | Head Office. |
|---|---|---|---|---|---|---|---|---|
| Africkander...... G | 18/9 21/3 | 21/3 | 1 0 | — | 1 0 0 | 40,000 | Transvaal ...... | 19, St. Swithin's-lan. |
| Agnes Block...... G | 10/- 12/- | 11/- | 1 0 | — | 1 0 0 | 78,507 | Transvaal ...... | 54, Old Broad-street |
| Appantoo......... G | — | — | 1 0 | — | 1 0 0 | 71,000 | West Coast ... | 9, New Broad-street. |
| Aurora............ G | 4/- 6/- | 7/- | 1 0 | 5% Mar. '93 | 1 0 0 | 65,000 | Witwatersrdt. | 8, Old Jewry.‡ |
| AuroraWest,NewG | 4/- 6/- | 6/- | 1 0 | 5% Mar., '93 | — | 80,000 | Witwatersrdt. | 1, Crosby Square.‡ |
| Balkis Eersteling... | -/3 -/6 | -/9 | 0 10 | — | 0 9 6 | 520,000 | Transvaal ...... | 85, Gracechurch-st. |
| Balkis Land ......... | 1/- 1/6 | 1/7½ | 0 10 | — | 0 10 0 | 520,000 | Transvaal ...... | 85, Gracechurch-st. |
| Banket.............G | -/9 1/- | 1/- | 1 0 | — | 1 0 0 | 200,000 | Witwatersrdt. | Johannesburg. |
| Bantjes Reef ......G | 15/- 16/- | 14/6 | 1 0 | — | 1 0 0 | 83,000 | Witwatersrdt. | Warnford-court.†‡ |
| Barrett............ G | 2/6 3/- | 3/3 | 0 10 | — | 0 9 0 | 207,496 | De Kaap ...... | 17, Basinghall-street |
| Bechuanaland Exp. | 23/6 24/6 | 24/6 | 1 0 | — | 1 0 0 | 200,000 | Bechuanaland | 18, St. Swithin's-lane |
| Black Reef (New)... | 5/6 6/6 | 6/6 | 1 0 | — | 1 0 0 | 76,000 | Witwatersrdt. | 9, King William st ‡ |
| Block "B" Lang. | 6/- 7/- | 7/- | 1 0 | — | 1 0 0 | 535,000 | Witwatersrdt. | 8, Princes-st. E C. |
| Booysen Land .... | 5/- 7/- | 7/- | 1 0 | — | 1 0 0 | 95,000 | Transvaal...... | 4, Tokenhouse-bldgs. |
| Brit. S. A. Char. ... | 28/- 29/- | 28/- | 1 0 | — | 1 0 0 | 2,000,000 | S. Africa ...... | 19, St. Swithin's-lane |
| Buffelsdoorn...... G | 28/- 30/- | 31/- | 1 0 | — | 1 0 0 | 250,000 | Potchefstroom | 8, Old Jewry. |
| Cape Copper ......C | 1⅛ 1¼ xd | 1¼ | 2 0 | 1/3 June '94 | 2 0 0 | 300,000 | Cape Colony.. | 9, Queen-street-place |
| Do. 6 % Pref. | 1 13/16 1 15/16 x | 1 15/16 xd | 2 0 | 1/3 June '94 | 2 0 0 | 45,000 | Cape Colony. | 9 Queen-street-place |
| Con. Montrose... G | 1/- 2/- | 2/- | 1 0 | — | 0 17 0 | 149,000 | Transvaal ...... | 10, Throgmorton Av. |
| Champ d'Or...... G | 1 9/16 1 11/16 | 1¾ | 1 0 | — | 1 0 0 | 116,016 | Witwatersrdt. | 8, Old Jewry, E.C. |
| City and Suburb. G | 13¾ 13¾ | 13¾ | 1 0 | 25% Mar. '94 | 1 0 0 | 75,000 | Witwatersrdt. | 1, Crosby Square.‡ |
| Coetzeestroom ...G | 1/- 2/- | 2/- | 0 5 | — | 0 5 0 | 140,000 | De Kaap ...... | 105, Leadenhall-street |
| Con. Bultfontein D | 26/- 27/- xd | 27/- | 1 0 | 5% Nov. '89 | 1 0 0 | 721,500 | Griqualand W | 62, Lombard-st. |
| Con. Deep LevelsG | 1⅝ 1¾ | 1¾ | 1 0 | 4/- June '94. | 1 0 0 | 187,250 | Transvaal ...... | 30, St Swithin's-lane |
| Con. G. Fields S A | 2 1/16 2 1/16 | 2⅜ | 1 0 | 10% Nov. '93 | 1 0 0 | 1,250,000 | S. Africa ..... | 8. Old Jewry. |
| Do. 5½% Deben. | 98½ 99¼ | 98⅛ | 5 0 | — | 5 0 0 | 600,000 | S. Africa ...... | 8, Old Jewry. |
| Crown Reef ......G | 7⅞ 8⅛ xd | 8⅛ | 1 0 | 25% May '94 | 1 0 0 | 120,000 | Witwatersrdt. | 23, Austin Friars.‡ |
| De Beers Consol. D | 14⅝ 14⅞ xd | 14¾ | 5 0 | 12/6 June '94 | 5 0 0 | 789,791 | Transvaal ...... | 62, Lombard-street |
| Do. 5½% 1st Deb. | — | — | 100 0 | 5¼% Feb. '94 | 5 0 0 | 1,875,000 | Transvaal ...... | 62, Lombard-street. |
| Do. 5½% 2nd Deb. | — | — | 100 0 | 5¼% Jan. '94 | 5 0 0 | 1,647,000 | Transvaal ...... | 62, Lombard-street. |
| Do. 5½% Bul Ob | 102½ 103½ | 103½ | 100 0 | 5½% Apr. '94 | 5 0 0 | 720,100 | Transvaal ...... | 62, Lombard-street. |
| Durban Roodept. G | 5¼ 5¾ xd | 5¾ xd | 1 0 | 3/- June '94 | 1 0 0 | 125,000 | Witwatersrdt | 28, Leadenhall-bldg |
| East Rand.......... | 12/- 13/- | 14/6 | 1 0 | — | 1 0 0 | 570,000 | Witwatersrdt. | 170, Winchester-ho.‡ |
| Evelyn ............G | — | — | 1 0 | 10% Jan. '89 | 1 0 0 | 66,000 | Witwatersrdt. | 28, Old Jewry, E.C |
| Exploration ........ | 17/6 22/- pm | 22/6 | 1 0 | 1/- Dec. '93 | 0 4 0 | 14[illegible],000 | S. Africa ...... | 30, S. Swithin's-ln. |
| Exploring Co. ....... | 3⅝ 3⅞ | 3¾ | 1 0 | 25/- Feb. '94 | 1 0 0 | 69,350 | S. Africa ...... | 19, S. Swithin's-ln. |
| Ferreira.......... G | 7⅝ 7⅝ | 8 | 1 0 | 100% June '94 | 1 0 0 | 45,000 | Witwatersrdt | 29, Holborn Viaduct. |
| Forbes Reef(New)G | 3/- 5/- | 5/- | 1 0 | — | 0 19 0 | 105,000 | De Kaap ...... | 45-6, Leadenhall-st. |
| Geldenhuis DeepG | 3 3¼ | 3¼ | 1 0 | — | 1 0 0 | 265,000 | Transvaal ...... | 30, St. Swithin's-lane |
| Geldenhuis Est. G | 4¾ 5 | 5 | 1 0 | 10% Mar. '93 | 1 0 0 | 187,500 | Witwatersrdt | 29 & 30, Hol. Viaduct |
| Do. Main Reef | 8/- 9/- | 9/- | 1 0 | — | 1 0 0 | 150,000 | Witwatersrdt. | Warnford-court, E.C.‡ |
| George and May... | 18/9 21/3 | 21/3 | 1 0 | — | — | 112,750 | Witwatersrdt. | Warnford Court, E.C |
| George Goch .. G | — | — | 1 0 | — | 1 0 0 | 100,000 | Witwatersrdt. | Johannesburg. |
| Glencairn .........G | 32/6 33/6 | 31/- | 1 0 | — | 1 0 0 | 200,000 | Witwatersrdt | 2, Drapers-gardens. |
| Gold Estates T... G | 3/6 4/6 | 4/6 | 1 0 | 15% Dec. '89 | 0 10 0 | 130,000 | Transvaal ..... | 46, Queen Victoria-st |
| Gld. Fis. Deep...G | 13/16 15/16 | 1 | 1 0 | — | 1 0 0 | 600,000 | S. Africa ...... | 8, Old Jewry. |
| G. F. of Mashonld. | 13/9 16/3 | 16/3 | 1 0 | — | 1 0 0 | 200,000 | Mashonaland.. | 19, St. Swithin's-ln. |
| G.F.Tierra d'Fuego | 2/1½ 2/4½ | 2/4½ | 0 4 | — | 0 4 0 | 400,000 | Mosambique... | 2, Tokenhouse Bldgs. |
| Grahamstown . G | 7/6 8/6 | 8/6 | 1 0 | — | 1 0 0 | 150,000 | Witwatersrdt. | 14, Throgmorton-av. |
| Graskop .......... G | -/9 1/3 | 1/3 | 0 5 | 2½% Mar. '91. | 0 5 0 | 500,000 | Lydenburg ... | 85, Gracechurch-st. |
| Griqualand W....D | 6¾ 7 xd | 7 xd | 10 0 | 4% March '94 | 10 0 0 | 105,700 | Transvaal ...... | 62, Lombard-street |
| Henry Nourse ...G | 2 9/16 2 11/16 | 2¾ | 1 0 | — | 1 0 0 | 100,000 | De Kaap ...... | Warnford-court. |
| Heriot (New) ...G | 4¾ 4⅞ | 4⅞ | 1 0 | — | 1 0 0 | 195,000 | Witwatersrdt | 1, Crosby Square.‡ |
| Joe's Luck...... G | 1/- 2/- | 2/- | 1 0 | — | 1 0 0 | 57,404 | De Kaap ...... | 11, Queen Vic.-st. |
| Johannesburg Pnr | 3¼ 3¾ | 3¾ | 1 0 | 12½% Nov. '93 | 1 0 0 | 2[illegible],000 | Witwatersrdt. | Johannesburg. |
| Jubilee ......... G | 5½ 5½ | 5½ | 1 0 | 30% Aug. '94 | 1 0 0 | 30,000 | Witwatersrdt. | 8, Old Jewry.† |
| Jumpers ......... G | 3⅞ 4⅛ | 4¼ | 1 0 | 30% June '94 | 1 0 0 | 100,000 | Witwatersrdt. | 29, Holborn Viaduct‡† |
| Kimberley ......D | 5/16 5/16 pm | 5/16 pm | 1 0 | — | 0 10 0 | 98,672 | Kimberley ... | 19, Finsbury circus. |
| Kimberley Rdpt.... | 6/6 7/6 | 7/6 | 1 0 | — | 1 0 0 | 125,000 | Kimberley . | 2, Drapers-gardens. |
| Kleinfontein (N)G | 1 9/16 1 11/16 | 1 11/16 | 1 0 | — | 1 0 0 | 150,000 | Witwatersrdt. | 8, Old Jewry. |
| Klerksdorp ....G | 1/3 1/9 | 1/9 | 1 0 | — | 1 0 0 | 150,007 | Transvaal ..... | 110, Cannon-street. |
| Langlaagte Est. G | 4¼ 4½ | 4⅝ | 3 0 | 12½% June '94 | 1 0 0 | 467,000 | Witwatersrdt. | 59, Holborn Viaduct.‡ |
| Do. Royal | 2¾ 2¾ | 2⅝ | 1 0 | 5% Sept. '93 | 1 0 0 | 100,000 | Witwatersrdt. | 2, Drapers-gardens. |
| Lisbon-Berlyn .. G | 2/- 2/6 | 2/6 | 2/6 | — | 0 2 8 | 68[illegible],233 | Lydenburg ... | 110, Cannon-street. |
| London & S. A. Ex. | 10½ 11 | 11 | 0 10 | 3/- June '94 | 0 10 0 | 100,000 | S. Africa ..... | 19, Finsbury-circus. |
| Luipaards Vlei Est | 8/- 9/- | 8/- | 1 0 | 6% Mar. '90 | 1 0 0 | 319,003 | Witwatersrdt. | Warnford-court.‡ |
| Do. do. do. | ⅛ ¼ | ¼ | 1 0 | — | 0 10 0 | 25,000 | Witwatersrdt. | 8, Old Jewry. |
| Main Reef (New)G | 8/9 11/3 | 12/6 | 1 0 | — | 0 10 0 | 300,000 | Witwatersrdt. | 8, Old Jewry. |

| Name. | Closing Price, July 20, 1894. | Closing Price, July 13, 1894. | Par. £ s. | Latest Dividend. | Called up Per Share. £ s. d. | Shares Issued. | Situation of Mine. | Head Office. |
|---|---|---|---|---|---|---|---|---|
| May Consol. .......G | 9/- 10/- | 9/- | 1 0 | — | 1 0 0 | 430,000 | Witwatersrdt. | 4, Lothbury.‡ |
| May Deep Level G | 9/- 10/- | 10/- | 1 0 | — | 1 0 0 | 146,000 | Witwatersrdt. | 33, Cornhill, E.C. |
| Metropolitan (N) G | 8/9 11/3 | 12/6 | 1 0 | — | 1 0 0 | 75,000 | Witwatersrdt. | 1, Crosby Square.‡ |
| Meyer & Charl....G | 5⅜ 5¾ xd | 5⅜ | 1 0 | 25% June '94 | 1 0 0 | 71,687 | Witwatersrdt. | Warnford-court.‡ |
| Mines Trust ......... | 13/- 14/- | 14/- | 1 0 | 3% May '94 | 1 0 0 | 82,774 | So. Africa ...... | 130, Winchester Ho. |
| Modderfontein G | 15/- 16/- | 15/- | 1 0 | — | 1 0 0 | 200,000 | Witwatersrdt. | Warnford-court.‡ |
| Montrose......... G | ⅝ ¾ | ¾ | 1 0 | 3/- Feb. '90 | 1 0 0 | 70,000 | De Kaap ...... | 65, New Broad-street. |
| Moodies G.&E....G | 6/- 7/- | 8/- | 1 0 | -/4 May '90 | 1 0 0 | 240,000 | De Kaap .... | 8, Old Jewry ‡ |
| Mozambique......... | 11/3 13/9 | 13/9 | 1 0 | — | 1 0 0 | 400,000 | S. E. Africa ... | Broad-street House. |
| Namaqua .........C | 16/3 18/9 | 16/3 | 2 0 | 2/6 July '91 | 2 0 0 | 194,351 | Namaqualand. | 34, Leadenhall-bldgs. |
| New Chimes....... G | 1⅝ 1⅞ xd | 1⅞ xd | 1 0 | 10% June, '94 | 1 0 0 | 70,000 | Witwatersrdt. | 8, Old Jewry, E.C. |
| New Olewer Estate | 15/16 1 1/16 | 1⅛ | 1 0 | — | 1 0 0 | 100,000 | Lydenburg ... | 29-30, Holborn-viadt. |
| New Crœsus...... G | 1 3/16 1 5/16 | 1¼ | 1 0 | 5% Aug. '92 | 1 0 0 | 195,000 | Langlaagte ... | 4, Bishopsgt.-st. Wt. |
| New Edwin Bray | 2/6 3/6 | 3/6 | 7 0 | — | 7 0 0 | 65,000 | De Kaap ...... | 23, College Hill |
| New Gordon..... D | 3/9 4/3 | 4/6 | 1 0 | 5% Dec. '89 | 1 0 0 | 560,250 | Griqualand ... | 110, Cannon-street. |
| New Jagersf. ...D | 12⅝ 13⅛ | 12⅝ | 10 0 | 5% Mar., '94 | 10 0 0 | 100,000 | Transvaal ...... | 5, Copthall-buildings |
| New LouisD'Or.. G | 4/3 4/9 | 5/6 | 1 0 | — | 1 0 0 | 100,000 | Witwatersrdt. | 53, New Broad-street |
| New Primrose ...G | 4 4¼ | 4½ | 1 0 | 20% July '94 | 1 0 0 | 230,000 | Witwatersrdt. | 2, Draper's-gardens. |
| New RietfonteinG | 15/- 20/- | 20/- | 1 0 | — | 1 0 0 | 160,000 | Witwatersrdt. | Warnford-ct., E C. |
| New Spes Bona ... | 5/- 7/- | 8/- | 1 0 | — | 1 0 0 | 113,801 | Witwatersrdt. | 24, N. John-st., L'pl. |
| N. Ophir Concess. | -/9 1/3 | 1/3 | 1 0 | — | 0 18 6 | 111,857 | E. CoastAfrica | 31, Lombard-street. |
| Nigel ............... G | 2¾ 2⅞ | 2 13/16 xd | 1 0 | 15% June '94 | 1 0 0 | 160,000 | Witwatersrdt. | 1, Crosby-square. |
| Nooitgedacht E. G | — | — | 1 0 | — | 1 0 0 | 160,000 | Lydenburg .. | 8, Old Jewry. |
| Oceana ............. | 1 1/16 1 3/16 | 1 3/16 | 1 0 | 25/- Nov. '89 | 1 0 0 | 150,000 | Transvaal ...... | 4, Sun Court, E.C. |
| Orange F.S.E. ...D | 3⅝ 4 | 4 | 1 0 | 12½ Mar. 94 | 1 0 0 | 284,000 | OrangeF.State | 10, Moorgate-street. |
| Orion.............. G | — | — | 1 0 | 10% June '94 | 1 0 0 | 30,000 | Witwatersrdt. | 10, Basinghall-street |
| Otto's Kopje......D | 1/9 2/3 | 2/3 | 1 0 | — | 0 19 3 | 437,888 | Kimberley ... | 110, Cannon-st., E.C. |
| Paarl Central ... G | 19/- 21/- | 21/- | 1 0 | — | 1 0 0 | 138,750 | Transvaal ...... | 29-30, Hol. Via., E.C. |
| Paarl Ophir ......... | — | — | 1 0 | 5p.c. Apr. '94 | 1 0 0 | 12,000 | Tweffontein ... | Cape Town |
| Pardy's Mozambq. | — | — | 0 10 | 10p.c. Apr. 94 | 0 10 0 | 13,000 | S. E. Africa ... | Broad St. Avenue. |
| Piggs Peak, New G | 1/6 2/6 | 2/6 | 1 0 | — | 0 16 6 | 230,326 | Swazieland ... | 6, Queen-street-place |
| Potchefstroom ... G | 1/6 2/6 | 2/6 | 1 0 | — | 1 0 0 | 161,000 | Potchefstroom | 19, Bury-st., E.C. |
| Princess Estate G | 17/6 20/- | 22/- | 1 0 | — | 1 0 0 | 72,046 | Witwatersrdt. | 33, Cornhill, E.C. |
| Randfontein ......G | 14/6 15/6 | 15/6 | 1 0 | — | 1 0 0 | 1,916,500 | Witwatersrdt. | 59, Holborn Viaduct.‡ |
| Rand Mines .......... | 6⅛ 8⅜ | 8⅜ | 1 0 | — | 1 0 0 | 332,798 | Witwatersrdt. | 29-30, Holborn Via. |
| Read's Drift ......D | 9/- 10/- | 10/- | 1 0 | — | — | 5[illegible],000 | Transvaal ...... | 19, Finsbury circus. |
| Robinson .........G | 6 6¼ | 6¼ | 5 0 | 5% June '94 | 5 0 0 | 543,750 | Transvaal ..... | 55, Holborn Viaduct‡‖ |
| Roodepoort Un. G | 2⅛ 2⅜ | 2⅜ | 1 0 | — | 1 0 0 | 100,000 | Witwatersrdt. | Warnford-court.‡ |
| St. Augustine ...D | -/6 -/9 | -/9 | 1 0 | — | 1 0 0 | 465,000 | Griqualand W | 30-1, St. Swithin's-ln |
| Salisbury New ...G | 2 2¼ | 2¼ | 1 0 | — | 1 0 0 | 93,000 | Witwatersrdt. | 1, Crosby-square.‡ |
| Sheba .............G | 26/6 27/6 | 27/- | 1 0 | 1/- July, '94 | 1 0 0 | 614,450 | Lydenburg ... | 85, Gracechurch-st. |
| Sliati ..............G | 2/6 3/- | 3/- | 1 0 | — | 0 16 0 | 625,000 | Zoutpansberg. | 4, Sun Court, E.C. |
| Simmer & Jack...G | 7⅛ 7⅜ | 7⅛ | 1 0 | 10% May '94 | 1 0 0 | 85,000 | Witwatersrdt. | 33, Cornhill. |
| S.A. Gold Trust ... | 22/6 25/- | 16/6 | 1 0 | 10% April '93 | 1 0 0 | 220,000 | South Africa.. | 8, Old Jewry. |
| S.Simmer & JackG | 1 7/16 1 9/16 | 1 9/16 | 1 0 | — | 1 0 0 | 12[illegible],000 | Witwatersrdt | 31, Lombard-st., E.C. |
| Spitzkop (New) G | 3/9 4/3 | 4/9 | 1 0 | — | 0 19 6 | 144,531 | Lydenburg ... | 15, Bishopsgt-st, Wt. |
| Stanhope ... ......G | 2 2¼ | 1 15/16 | 1 0 | 50% May. '93 | — | 34,000 | Witwatersrdt | 1, Crosby Square.‡ |
| Sutherland R. ...G | 4/6 5/- | 5/3 | 1 0 | — | 0 18 6 | 220,000 | Zoutpansberg. | 3, Budge-row, E.C. |
| Teutonia............G | — | — | 1 0 | — | 1 0 0 | 96,000 | Witwatersrdt. | 8, Old Jewry |
| Thistle Reef ......... | -/3 -/6 | — | 0 5 | — | 0 4 0 | 150,000 | Barberton ..... | 15, Angel-court, E C. |
| Trans. Coal Trust... | 12/- 13/- | 13/- | 1 0 | 2½% May '94 | 1 0 0 | 439,965 | Witwatersrdt. | Broad-st. House, E C |
| Trans. Est. & Dev. | 8/- 9/- | 9/- | 1 0 | — | 1 0 0 | 285,700 | Transvaal ..... | 76, Old Broad-st. E C. |
| Trans. Gold ......G | 1⅞ 1 15/16 | 1⅞ | 1 0 | 1/- June '94 | 1 0 0 | 250,000 | Transvaal ...... | Suffolk House, E.C. |
| Trans. Land......... | 5/3 5/9 | 5/9 | 1 0 | — | 1 0 0 | 79,915 | Transvaal ...... | Suffolk House, E.C. |
| Trans. Land......... | 1/6 2/6 | 2/6 | 1 0 | — | 0 15 0 | 169,999 | Transvaal ..... | 33, Cornhill. |
| Treasury.........G | — | — | 1 0 | 7½% May '94 | 1 0 0 | 26,000 | Witwatersrnt. | Johannesburg. |
| Turffontein Est. .. | — | — | 1 0 | 2½ Jan. 94 | 1 0 0 | 4[illegible],007 | So. Africa ...... | 130, Winchester Ho. |
| Un. Ivy Reef......G | 13/9 16/3 | 16/3 | 1 0 | 2½ Jan. '94 | 1 0 0 | 45,000 | Transvaal ...... | 110, Cannon-street |
| Un. Langlaagte ... | 12/6 15/- | 15/- | 1 0 | — | 1 0 0 | 100,000 | Witwatersrdt | 23, St. Swithin's-ln. |
| Van Ryn ......... G | 1 1⅛ | 1¼ | 1 0 | — | 1 0 0 | 99,810 | Witwatersrdt | 1, Crosby-square.‡ |
| Victory Hill .....G | — | — | 1 0 | — | 1 0 0 | 10[illegible],000 | De Kaap ...... | Portland House, E.C. |
| Village Main Reef | 3¼ 3¾ | 3⅜ | 1 0 | — | 1 0 0 | 132,000 | Witwatersrdt. | 8, Old Jewry. |
| Virginia(New)...G | 2/9 3/3 | 3/6 | 0 10 | — | 0 9 0 | 48,335 | Transvaal ...... | 26, Budge-row, E.C. |
| Wassau ............G | — | — | 1 0 | — | 1 0 0 | 100,000 | Gold Coast ... | 147, Cannon-street. |
| Wemmer .........G | 4⅛ 4¼ | 4⅝ | 1 0 | 10% Nov. '91 | 1 0 0 | 55,000 | Witwatersrdt | 19, Bury-street.‡† |
| Willoughby's ..... | 5⅛ 6⅛ | 6½ | 1 0 | — | 1 0 0 | 30,000 | Mashonaland.. | 19, St. Swithin's-lane |
| Witwatersrandt ... | 21/6 22/6 | 22/6 | 1 0 | — | 1 0 0 | 250,000 | Witwatersrdt. | 19, Bury-st., E.C. |
| Wolhuter .........G | 2⅛ 2¾ | 2¾ | 1 0 | 2/- Apr., '94 | 1 0 0 | 120,000 | Witwatersrdt. | Warnford-court.† |
| Wolverand.........G | 6/- 7/- | 7/- | 1 0 | — | 0 16 0 | 102,083 | Transvaal...... | 5, Copthall-buildings |
| Worcester .........G | 2¼ 2⅜ | 2 5/16 | 1 0 | 10% May '94 | 1 0 0 | 90,727 | Witwatersrdt. | 8, Old Jewry ‡ |
| Zambesia Explora. | 2 2¼ | 2¼ | 1 0 | — | 1 0 0 | 45,000 | Transvaal ...... | 13, George-st., E.C. |

# PROVINCIAL SHARE MARKETS.

### THE CORNISH MINE SHARE MARKET.

MR. SAMUEL JOHN DAVEY, Dealer in Cornish Mine Shares, Redruth, Cornwall, reports under date of July 19 (4 o'clock) as follows:—We have had a very quiet market this week, with easier prices for some mines, and there is but next to nothing doing to-day. Following are quotations:—Blue Hills, ⅛ to ½; Carn Brea, 6½ to 7; Cook's Kitchen, ¼ to ½; Dolcoath, 63 to 65; East Pool, 7½ to 7¾; Killifreth, 3 to 3½; South Condurrow, ½ to ¾; South Crofty, 1 to 1½; South Wheal Frances, ⅝ to ⅞; Tincroft, 9¾ to 10; West Frances, 1¼ to 1½; West Kitty, 5½ to 6; Wheal Agar, 1¼ to 1½; Wheal Basset, 1 to 1½; Wheal Grenville, 16 to 16½; Wheal Kitty (St. Agnes), 7s. to 9s.; Polberro, 1½ to 1⅞.

Mr. MICHAEL WILLIAMS BAWDEN, Mining and Assaying Offices, Liskeard, Cornwall, writes (July 19) as follows:—The mining market was firmer at the opening of the week with an inquiry for most of the leading shares at an advance, but prices have since receded; holders are anxiously waiting result of the Tariff Bill. Closing prices:—Blue Hills, 5s. to 6s.; Carn Brea, 6¾ to 7; Cook's Kitchen, ⅝ to ¾; Devon Consols, 1⅛ to 1¼; Dolcoath, 65 to 65½; East Pool, 7¾ to 8; Killifreth, 2½ to 3; Levant, 5¼ to 5¾, x.d.; South Crofty, 1¼ to 1⅜; South Frances, ⅝ to ¾; Tincroft, 10 to 10½; West Frances, 2 to ½; West Kitty, 5½ to 5¾; Wheal Agar, 1¼ to 1⅜; Wheal Basset, 1¾ to 2; Wheal Grenville, 16 to 16½; Wheal Kitty, 8s, 6d. to 9s. 6d.

Messrs. ABBOTT AND WICKETT, Stock and Share Brokers, and Mining Share Dealers, Redruth, write under date of Thursday, July 19:—Very little doing in the mining market this week, and prices as a rule are lower. A few Cook's Kitchens have changed hands. There has been a small business in Killifreths and Tincrofts. Quotations herewith (four o'clock):—Blue Hills, ⅜ to ½; Carn Brea, 6½ to 7; Cook's Kitchen, ½ to ¾; Dolcoath, 64 to 65; East Pool, 7¼ to 7¾; Killifreth, 3 to 3½; Polberro, 1 to 1½; South Condurrow, ⅜ to ⅝; South Crofty, 1¼ to 1½; South Frances, ⅜ to ⅝; Tincroft, 9½ to 10½; West Frances, 1 to 1½; West Kitty, 5½ to 6; Wheal Agar, 1 to 1½; Wheal Basset, 1½ to 2; Wheal Grenville, 16 to 16½; Wheal Kitty, 6s. 6d. to 8s. 6d. Tin, 67.

### MANCHESTER.

Messrs. JOSEPH R. and W. P. BAINES, Stock and Share Brokers Queen's Chambers, 7, Market-street, write, July 19, 1894 (noon):—Though business throughout the markets (apart from a slight spurt here and there) has been sluggish again, the course of prices is mostly towards improvement. This improvement, certainly, is most noticeable in railway departments, and particularly so in Home rails, though best points herein are not in all cases maintained. Still advances are very general, and some are more than fractional. Sheffield deferred, with fall of ½, and Chathams, 1-16, are the only exceptions herein, whilst advances of 1 to 1½ are numerous, and range throughout this market. Americans have been strong at times, but taking of profits on advances has caused fluctuations as usual. These fluctuations, however, have not been very wide, and leave figures for the most part still showing some advance compared with a week ago. The only advances of amount worth naming are Louisvilles $1⅝, New York Central $¼ to ⅜, Ohio First $⅛, and Readings $½ to ⅝, but there are a lot expressed in smaller fractions of a dollar. On the other side, Atchison ordinary are ⅛, Union Pacific $¼, Atchison Incomes $½, and Denver ordinary $½ down. The majority of these declines would not call for record were it not for their being exceptional. In Canadians, Pacifics are $½ up, and Trunk issues are better; the Guaranteed ⅜, First Preference ⅜, and Third Preference and Ordinary ⅛ each. Mexican Rails show Ordinary ⅛ up; First Preference ¼ and Second Preference 2 to 2½ lower. Consols have advanced ⅛ to ¼ on the week, and in the other departments of the "gilt edged" type appreciation still goes on. Colonial Government Bonds, whilst not much altered, nominally show advances where any change is marked. Natal Inscribed Stock is 1 and New South Wales Consolidated and Victoria Inscribed ½ each higher. Corporation stocks, &c., have a record similar to the last named. Birmingham 3½ per Cents., Hull 3½ per Cents., and Newcastle 3½ per Cents. are each ½, and Liverpool 3½ per Cents. ½ higher, with no declines reported. Foreigners show very few variations, and the amounts are small also.—Higher. Argentine Five per Cents. ¾, ditto Six per Cents. ½, and Uruguay 3½ per Cents. ½.—Lower. Spanish Four per Cent, ⅛; and Italian Rentes ¼. Business continues very restricted in the miscellaneous markets, whilst as regards current quotations, though there is some irregularity evidenced by a minority of declines, still most classes show a majority of changes on the side favourable to holders.

BANKS.—The transactions are only of a straggling character, and reach but a poor total altogether. Prices, however, have had some attention given them with the following result, viz.: Higher—Parrs ¼, Union of Manchester ⅛ to ¼, London and Midland ⅛ Manchester and Salford 1-16 to ⅛, and Mercantile of Lancashire 1-16. Lower—Bank of Liverpool 1⅜, Imperial of Persia ½, Adelphi ⅛, and District ⅛.

INSURANCES.—Business more straggling than last-named, but here also prices show a fair number of revisions. National Boilers especially good, being ¾ to 1, and Royals ⅝, Guardian ⅛, Liverpool and London and Globe, ½. London and Lancashire and Thames and Mersey, 1-16 each higher. Lower: British and Foreign Marine, ⅛; Equitable, 1s, to 2s.; and Manchester Fire, 1-16,

COAL, IRON, &C.—Nothing doing yet save in Bolckows and Ebbw Vales, and very little in these, even the latter furnishing about all the markings recorded. The changes in current quotations are hardly worth noticing, but such as they are, we report them. Higher: John Browns and Dorman Longs, ⅛ each, and Ebbw Vales, 1-16. Lower: Palmer's Shipbuilding A, 1½; and Rhymney Iron, 6d. to 1s.

COTTON SPINNING, &C.—Business just about nil. The extremely low prices do not, as yet, appear to tempt buyers into the market. Sellers, however, do not press very much; hence, whilst quotations remain in most cases (all, indeed, except the top rank), unchanged, they are usually quite nominal, and would, no doubt, have to be materially departed from to induce transactions of any magnitude.

MINES, although hardly anything done here, seem to be stronger on quotations; the following being higher, viz., Mysores, 3 16; Ooregum Ordinary, ⅛; Consolidated Gold Fields of South Africa, 1-16; and Tintos, 1-16; without any changes of an adverse nature.

TELEGRAPHS and TELEPHONES.—Nothing doing in this market, and the only change in current prices is a rise of 1-16 on National Telephone Ordinary.

BREWERIES.—Allsopps have chopped about within somewhat narrower limits than of late, and finish 2 up on the week. Guinness' are 1, and Threlfalls ¼ to ½ higher. Parkers (Burslem), however, quote ½ easier. Chesters quiet, but steady in prices.

MISCELLANEOUS.—Ship Canals have provided but a small number of transactions, the Preference being just the turn better on the week, and Ordinary unaltered. The transactions reach a very meagre total, and the following changes in prices may be named:—Higher: Liverpool United Gas, A, 2, Brooke Bonds ⅜, Bovril ⅛ to ¼, Rylands ⅛, and Chartered of South Africa 1s. 6d. Lower: Jones's Sewing Machines ½ to 1, United Alkali 9-16, Pacific Steam ¼ to ½, Manchester Carriage, A and B issues, ½ each, Salt Unions ⅛, Eastmans ⅛, and Northern Assetts 6d.

LATER (4 P.M.).—Home rails are not altered much generally, North Easterns are about ⅜ lower, but Great Eastern have improved 1 on their dividend announcement—1 per cent.—with £2500 forward, against ¾ per cent., and £7500 odd forward at same period last year. They showed a little better at one time, but not maintaining all the advance, finish as stated compared with the opening price. Very little change in Americans; they opened about steady, but in some cases eased a little later. Trunks and Mexican rails are without change worth naming.

### SCOTCH MINING AND INDUSTRIAL COMPANIES SHARE MARKETS.

STIRLING.—Mr. J. GRANT MACLEAN, Stockbroker and Ironbroker (July 19), writes:—During the past week the market has continued quiet, partly due to the holiday season of the year and the continued strike among the Scotch miners. The metal markets show little alterations.

In shares of coal, iron, and steel companies, prices have in some cases improved. Bolckow Vaughan are at 10; Ebbw Vale, 8½; Marbella, 51s. 6d.; Niddrie, 42s.; Nantyglo and Blaina, 7½; Rhymney Iron, 32s.; Steel Company of Scotland, 46s. 6d.; and Shotts Iron, 20.

In shares of copper concerns there has been little business doing, Tharsis and Tinto unaltered. Arizona are at 5s. 6d.

In shares of gold and silver mines a moderate amount of business has been done and the movements are irregular. Montana improved from 13s. 1½d. to 14s. 7½d., and are now about 14s. Mallina higher on the announcement that they have struck a pocket of very rich ore. The Frontino's profit for May is announced at £2960. African Gold Recovery shares declined to 33s., but are now about 34s. 3d. American Belle are at 3s.; Blue Spur, 1s. 3d.; Broken Hill, 51s. 9d.; Balaghat, 6s.; Bechuanaland, 23s.; Consolidated Gold Fields, 43s. 3d.; Cassel, 17s.; De Lamar, 19s. 3d.; Golden Gate (C.F.), 1s.; Kapanga, 3s. 3d.; Kempinkote, 3s. 6d.; Lisbon-Berlyn, 2s. 6d.; Mysore Wynaad, 3s. 6d.; Newfoundland Colonisation, 2s. 3d.; New Louis d'Or, 4s. 6d.; Nundydroog, 28s. 9d.; New Guston, 17s. 6d; Otto's Kopje, 2s.; Orita, 2s. 9d.; Spitzkop, 4s. 3d.; Sunburst, 1s. 6d.; South African Trust and Finance, 3s. 9d.; St. Augustine, 1s.; and True Blue Block, 2s. to 3s.

In shares of miscellaneous companies prices are generally easier In oil companies Broxburn are at 8, Linlithgow 12s. 6d., and Young's 21s. Lawe's Chemical are 6½, and Nobel's Explosives 13 3-16.

### EDINBURGH.

Messrs. THOMAS MILLER and SONS, Stock and Share Brokers, 69, Hanover-street, Edinburgh, report as follows under date of July 19:—The markets have been very quiet, but prices have in some cases improved. Caledonian Railway Deferred Stock has risen from 43 13-16 to 43 15-16, North British from 38½ to 38⅞. Debenture Guaranteed and other high class securities continue in demand. British Linen Bank Stock has receded from 387 to 386. National have risen from 336 to 337. In Insurance shares Standard Life have risen from 60⅝ to 61¼, Royal from 46⅞ to 47⅜, Scottish Union and National A from 82s. 6d. to 83s. Commercial Union have receded from 31¼ to 30⅞. North British and Mercantile from 34 to 33⅞. British South Africa shares have improved from 27s. to 28s. 3d. Scottish American Investment shares have improved from 68s. 6d. to 70s Fife Coal have risen from 30 to 31, Steel shares from 45s. to 46s. 6d. Broxburn Oil have declined from 8 1-16 to 8, Linlithgow Oil from 16s. to 12s. 6d. Assets 6d. higher at 46s. 6d. Barry Ostlere 1s. 3d. higher at 8½. Coats 2s. 6d. higher at 17½. Edinburgh Street Tramways shares are now reduced to £4 each by the return of an additional £1 of capital. At 83s. they show a rise relatively of 2s. 6d.

ELMORE'S FRENCH PATENT COPPER DEPOSITING COMPANY (LIMITED).—A general meeting was held on Thursday, at Winchester House.—Mr. J. H. Duncan (the liquidator), who presided, stated that the specific object of the meeting was to appoint a board for the resuscitated company. Last December meetings were held at which a scheme of distribution was approved, but the Long Vacation ensued, and the order of the Court was not drawn up until February 15. The French company had now got into thorough working order, and by the beginning of next month it would be on an extended scale of working, a considerable amount of new and improved plant having been laid down. The first six months' working had been seriously affected by competition, but he thought that matters had come to a point in this direction, and that in the remainder of the year they might expect things to go smoothly. In other respects matters had been working extremely well with the company in France, and it was becoming established on a good commercial basis. After some discussion, Messrs. Duncan, Strettell, and Shurmur were appointed directors, on the motion of Mr. F. L. Rawson, seconded by Sir James Mackenzie, but a further resolution was afterwards passed, directing the calling of another meeting to alter the appointment to that of trustees. A resolution was proposed for the election of Major Jones (the late Chairman) as a director, but he stated that he must decline to accept office on account of failing health.

THE output of gold of the Ruda Twelve Apostel Mining Company, Transylvania, for the month of June amounted to 50,557 grammes, the total production for the year to date being 530,758 grammes as against 619,725 grammes in the preceding year.

# REPORTS FROM THE MINES.

*We find it necessary to announce that, owing to the vast numbers of mining reports, and items of mining intelligence which reach us invariably very late—up to, and frequently after the time of going to press—it is impossible to guarantee the insertion of all of them in the issue in which, in ordinary course they should appear. We always endeavour, however, to make this important feature as complete as possible, and if the secretaries of mining companies, mining captains, and others would kindly make an effort to let their reports, etc., reach us early on Fridays, when it is not possible to let us have them earlier in the week, their doing so would go far to ensure their insertion, and to promote the completeness of our Mining Intelligence.*

## BRITISH MINES.

DEVON GREAT CONSOLS.—William Clemo, July 19: Watson's engine shaft. In the 172 fathom level east the lode is large—5 feet wide—producing 2 tons of copper and mundic ores per fathom. In the 160 fathom level east the lode is 4 feet wide, a promising lode, yielding 2 tons of copper and mundic ores per fathom. In the rise in the back of the 160 fathom level the lode is 3 feet wide, composed of capel, quartz, and a little mundic. In Bawden's winze below the 148 fathom level east the lode is 4½ feet wide, yielding 4 tons of copper and mundic ores per fathom. All operations underground and at surface are proceeding satisfactorily.

GREEN HURTH.—July 13: Annie's vein. There is no change to note in any of these workings this week. The south forehead is worth for lead about 15 cwts. per fathom. The heading above continues to yield ore worth 2 tons per fathom.—Annie's vein north. This has been holed through to sump; we have yet 5 fathoms of heading to take out in front, worth for lead 1½ ton per fathom.—South-west branch. The vein at the south forehead has widened out to about 4 feet. A quantity of spar has put into the end; during the last two days some large lough holes have been met with; this has reduced the value of the end for lead, worth to-day 5 tons per fathom.—Crosscut west. The crosscut west from No. 1 vein has been driven a fathom on the week. Some good leads with ore are being met with going off in the direction of south-west branch vein.—W. Gray.

LEADHILLS.—W. H. Paull, July 16: Brown's vein. The 160 fathom level is being extended south of Jeffrey's shaft in a large and strong vein, which contains a good mixture of spar spotted with ore. In the 160 fathom level north of Wilson's shaft the vein is over 4 feet wide, strongly mixed with spar, but soft and unproductive. The vein in No. 2 winze sinking below the 145 continues much of the same character, and stone too dark for producing ore. In the 145 driving north of Jeffrey's shaft the vein is becoming wider, now 4 feet, and showing some nice spar but no ore to value. The vein in No. 1 stope over the 145, north of Jeffrey's shaft, is worth 35 cwts. of ore per fathom. In No. 2 stope over ditto the vein is worth 25 cwts. of ore per fathom. In the 115 fathom level driving north of Jeffrey's shaft the vein contains a little ore, and well mixed with spar. No. 1 stope over this level north is now yielding 30 cwts. of ore per fathom. The 100 fathom level south of Wilson's shaft is going forward on a vein 4 feet wide, containing spar and stone of a rather promising character. In the drivage south at this level on eastern portion of vein the only change therein is that the vein contains more spar and lets out a little water. The crosscut east at the 100 fathom level south of Wilson's shaft is going forward regularly. In cross cutting west at same level north of Wilson's shaft the ground is stiff for exploring; now extended 8 feet. In No. 1 stope over the drift above the 100 the vein is 4 feet wide, worth 40 cwts. of ore per fathom. The vein in No. 2 stope over ditto will produce 50 cwts. of ore per fathom. In No. 1 stope over the 85 south of Wilson's shaft the vein is worth 30 cwts. of ore per fathom. The ground in cross cut east at the 70 fathom level south of Wilson s shaft is without any further change In the stope over the 50 south of winze the vein is producing 35 cwts. of ore per fathom. The vein in the stope below the 35 south of flat rod shaft will now yield 25 cwts. of ore per fathom. At Gripps' adit driving south the Sarrowcole vein is much of the same character and has a kindly appearance. During the past I have had the old jiggers taken out at our dressing floors and replaced them with new ones which have been set to work to-day, and they are working well.

NEW MINERA.—Mining report for the two weeks ending July 13: 275 yard level near forebreast west, five men on tribute. Lode worth 2½ to 3 tons lead ore and blende per fathom, estimated to produce 10 tons per month. West of winze two men on tribute. Lode worth 3 tons blende per fathom, estimated to produce 5 tons per month. 295 yard level west of winze, four men on tribute. Lode worth 2½ tons blende per fathom, estimated to produce 9 tons per month. West of sump, four men on tribute. Lode worth 3 tons blende per fathom, estimated to produce 9 tons per month. 315 yard level driving east of main crosscut, the lode contains a little lead ore. West of incline shaft, two men on tribute. Lode worth 2½ tons blende per fathom, estimated to produce 4 tons per month. East of incline shaft in the bottom of the level, six men on tribute. Lode worth 3 tons blende per fathom, estimated to produce 14 tons per month. Near forebreast west, four men on tribute. Lode worth 3 tons blende per fathom, estimated to produce 10 tons per month. East of winze, two men on tribute. Lode worth 2½ tons blende per fathom, estimated to produce 5 tons per month. West of winze, two men on tribute. Lode worth 2 tons blende per fathom, estimated to produce 4 tons per month. East of incline shaft, two men on tribute. Lode worth 2½ tons blende per fathom, estimated to produce 5 tons per month.—Dressing. 23 tons blende have been sent off since last report, making the total quantity sold 4212 tons blende and 1720 tons lead ore.

PHŒNIX UNITED.—July 18: Setting report. We are pleased to say that we are making fair progress in forking at Seccombe's shaft. The water is now about 5 fathoms below the 186 fathom level.—Western Mine. The 100 fathom level west of new engine shaft, which is being driven by boring machinery, is making good progress. The distance driven for the month will not be less than 11½ fathoms. The lode here is again showing signs of improvement, more of the nature of the lode we had at the 70 fathom level previous to reaching the rich tinground. The lode is worth £10 per fathom. To rise in the back of the 100 fathom level by four men at £5, lode worth £10. To drive the 0 fathom level west at £9, lode worth £7. To drive the 40 fathom level west by six men at £8. Lode worth £12. To stope and drive back of adit west by 12 men at £3 10s. Lode worth £10. To stope and drive the midway level west by six men and two boys. Lode worth £11. To rise in back of adit west by six men and one boy. Lode worth £12. To rise in back of adit west by one man and one boy. Lode worth £7. To stope and drive in back of adit west by six men at £4 10s. Lode worth £9. In this part of the mine there are five stopes working by 16 men. The lode being worth from £8 to £10 per fathom: and at various points we have 28 pitches, working by 97 men, at tributes varying from 4s. to 13s. in the £ for tin.—(Signed) John Williams, John Rundle, William Manley, James Hosken.

PRINCE OF WALES.—S. Roberts, J. Prowse, July 18: The cross cut north at the 193 fathom level is now driven about 30 fathoms. There is but little change to notice. The ground is still composed principally of very hard killas and capel of a very congenial nature, all veins and branches below the slide underlie north.

POLBERRO. — July 16: Trevaunance engine shaft is sunk 5 fathoms below the 14 fathom level. We have risen 2 fathoms above the 20 fathom level and 5 fathoms above the 26 fathom level on the line of this shaft, making 12 fathoms sunk and risen since we commenced this work. In the 26 west on Pink lode we are getting into more settled ground. There is no change in the 26 east on Pink lode since our last report. We have to-day sampled 17 tons from the 26 east and west on South House lode, which yielded 43 lbs. tin per ton. We have opened in all 5½ fathoms on the South House lode at this level.—(Signed) Charles Thomas, John Harper.

SOUTH AUSTRALIAN PETROLEUM FIELDS.—The following information has been received from our manager in Burmah:—We are making a big push, drilling here every day with four sets of tools, and when I get my map made you will be able to see what progress we have made in the drilling line since we came here. I am in hopes of being able to cable you good news of striking more oil in a couple of weeks from now. Price of oil at the end of our pipe line is 3 rupees per maund. This is a tip top price. I want another driller from Canada, whish I will explain in my next letter. Everything going well.

WEST KITTY (St. Agnes).—July 19: The 108 fathom level west is worth £7 per fathom. The 94 fathom level west is worth £8 per fathom. The winze in bottom of 94 fathom level is worth £7 per fathom. The 84 fathom level west is worth £10 per fathom. The 60 fathom level west, south of slide, is worth £15 per fathom. The 60 fathom level east is worth £11 per fathom. The lode in the rise in back of 60 fathom level is being disordered for the present by a gossan crossing it, which we hope to get clear of again in a few days. We hope to complete the timbering of the collar of Thomas' shaft this week, and go on with cutting it down without interference. Our stopes and tribute pitches continue to yield the usual quantity of tin.—(Signed) John Williams, Joel Hooper.

WHEAL AGAR.—July 14; Setting Report—Robarte's Engine Shaft. The strength and congenial character of the lode in the bottom has always impressed us with the necessity of employing every available means for vigorously sinking it when opportunity presented itself. Having in the past month cut ground for air winch, fixed same together with penthouse. We have commenced with boring machinery to urge this point on as rapidly as possible with a full pare of men and two machines at £40 per fathom. The lode is masterly in size, more than the full width of shaft (8 feet), composed of mundic and quartz, contains a little copper, and lets out hot water very freely. The shaft is now down 5 fathoms below the 320 fathom level. The lode in same is worth full £45 per fathom for tin. The 320 is driven west of shaft 18 fathoms: for most of this drivage the lode has been of a uniform size and yield. In the present end, however, its width is greatly increased. We have tested it for 15 feet in width, the average assays from which is 30 lbs. of tin to the ton of stuff. The value of this point for the ordinary size of end is £15 per fathom; price for driving by seven men and boring machine £10 per fathom. There are two stopes working in the back of this level by 18 men at 4s. 6d. per ton of stuff, and worth for tin £15 per fathom. The 320 fathom level is driven east of shaft 16 fathoms. This point is being driven by seven men and machine at £10 per fathom. Lode more than full size of the end, its composition and make very similar to that in the shaft and worth £12 per fathom. As soon as convenient we purpose to put up a rise in the back of this level and eventually communicate with the level above. This will improve the ventilation and give us an additional section of stoping ground. The 312 to drive east of crosscut by seven men and machine at £12 per fathom. This end in the last 2 fathoms driving we have the evidence of the north part of the great or main lode forming a junction with this the new north lode, on which the former part of the drivage was made. Now, for the purpose of making speed we are continuing the drive on its course by seven men and a machine at £12 per fathom, the portion carried for width of end is worth £10 per fathom. The better defined and more productive is the north lode. This will be fully tested and proved by stoping when the communication referred to is effected. There is one stope working in the bottom of this level west of No. 1 winze by nine men at 4s. per ton of stuff, lode composed of mundic, quartz, and capel, worth for tin £15 per fathom. One stope in the back of the 270 working by 12 men at 4s. 6d. per ton of stuff, lode large and well defined, worth for tin and arsenic £15 per fathom. One stope in the back of the 255 fathom level working by 12 men at 4s. 6d. per ton of stuff, lode worth for arsenic and tin £12 per fathom. In the tribute department we have 12 pitches at work by 46 men at an average tribute of 8s. 10d. in the £. We are giving every attention to the renovation of certain portions of the stamps and floors, from what has already been done a corresponding benefit is being secured. The machinery, both underground and at surface, is in good working order, and the prospects of the mine as a whole very encouraging.—Wm. Hambley, R, Daniel, M. D. Penhale.

## COLONIAL, INDIAN, AND FOREIGN MINES.

FRONTINO AND BOLIVIA.—Report of the mine agents on the mines, La Salada, May 23: Silencio. The work at this mine has proceeded regularly. The sinking in the main shaft has been delayed considerably, owing to the fixing of the new pole at the No. 5 or 400 feet level, which we are glad to say is working very satisfactorily. The most important work to report is the holing of the new shaft with a stope above the No. 4 or 340 level south. By this means we are are saved about four or five months' labour, as the shaft is now holed right through to the 340 south from surface. The shoot for tipping in the 103 or adit level is well advanced, and we are making preparations for housing the new whim. In Maria Dama the excavations for the new wheel have been practically completed, and we are now bringing in stone for the mason work of the wheel pit. At the Salto good advance has been made in the work of the new arrastres, the water-course having been completed (minus one or two short aqueducts), and the framework for the arrastres put in place. The masons are now trimming stone for the arrastre beds. On the whole, the work in these departments is progressing steadily, and in as satisfactory a manner as we could wish.—La Salada. The sinking of the new shaft has been resumed, but sufficient work has not been done to enable us to measure. The No. 6 end south has changed in size and quality during the month; good stones of pyrites are taken out, but the lode generally is poor. A new rise has been started close to the end of the level to explore the ground between this and the No. 4 level. Also a new level has been started to drive west on the flat lode. The lode is about 6 feet wide, of quartz, with large pockets of rich pyrites. This is intact from the surface to this level, and good mineral may be expected from this working, according to reports of old miners. The stopes have shown a slight decrease in the quality of the mineral raised, but by an increase in the quantity milled we shall be enabled to keep our returns equal to last month. The surface operations for the new mill are being continued.—Cordoba. The work at this mine has proceeded as usual. The No. 8 crosscut continues hard. The lode in the No. 7 end south (Rosario section) has changed in size during the month, the quality of mineral extracted has been decreased by the mixture of the soft nature of the ground, which is continually falling with lode stuff in working. The stopes in the back of this level have shown a slight decrease in quality also. This is owing to the communication made with the winze from the Rosario level, as both levels were on the footwall part of the lode. The richest remains in the hanging part. We were unable to take out all the lode, as we should have done, for the lode here is fully 12 feet wide. The stopes in the south part of the mine have not produced so well as last month. We have had a breakage in the Cordoba mill. The gudgeon of the battery axle broke, but we expect to get this working again after a delay of 48 hours.—Tigrito. We have cut the lode in the No. 6 cross cut. It is about 2 feet wide, and contains some good stones of pyrites. The nature of the country rock, seen and gone through, both foot and hanging wall sides, is hard granite. The lode is very flat, and contains quartz and soft granite mixed with pyrites, as seen in the deep levels at Silencio and La Salada Mines. We shall deposit a pile of the mineral at the mill to make a trial crushing, and will also assay it as soon as possible.—Marmajon. Good progress has been made in driving the deep level cross cut here during the month. We have about 40 feet more to drive to cut the lode. Preparations are being made to lay down a tramway here for the extraction of the debris and mineral.—Marmajito. The clearing of the No. 1 level has been rather slow, but we are doing substantial work at this place. The No. 2 cross cut is hard, and progress is not all we had hoped for. The stoping, resumed in the back and bottom of the No. 1 level is producing about the same as usual. We are increasing the size of the mill house, and making new buddles here, for the better and more economic treatment of sands produced from ores milled at the mills.—Pocune and Rosario Watercourses. The work at the San Antonio aqueduct (Pocune) is well advanced. At Rosario we have been repairing the watercourse, &c. Up to date the rains have done little damage in these sections, and the work at the mines is proceeding satisfactorily, as are also the company's interests.—James S. Gilbert, William Truran.

OSCAR GOLD.—The following report has been received from the mine, dated Haugesund, July 13:—Hodgkinson's Lode. There is no change in the 500 north level. We have still a small run of quartz in end. The rise in the 200 north level shows improvement. The quartz is still largely mixed with the country rock, but contains considerably more galena, especially is this the case near footwall of lode. Yesterday I found visible gold in several small stones which I brought from this working. I noticed also that the hard grey quartz which accompanied the richer run from surface was being met with in the rise. If the lode continues gold bearing, as at present indicated, we shall soon be in a position to break large quantities of mill stone from this section, and being beyond the influence of the dyke, may reasonably reckon on a continuous lode north. I trust the company will soon be able to employ an increased number of workmen, as working the mine as at present can give satisfaction to none. We require to open up quickly to have several ends going at one and the same time, that we may make reserves. When such is the case, we can think about making the mine pay.

PESTARENA.—Midmonthly report: Ends. The 55 east is now in junction with the C and Caunter lodes. The No. 1, however, maintains its course, and shows signs of improvement, there being small patches of ore mixed throughout. The 70 end east is carrying a well-defined lode of promising appearance, and occasionally a little pyrites is met with. In the 140 end west on No. 5 lode the branch has become wider and the schist is being replaced by quartz. It is now estimated at 1½ tons of 1 ounce ore per fathom.—Winzes. The winze under the 70 level west is carrying 70 centimetres of quartz and pyrites, valued at 15 tons of 2 ounces of ore per fathom of winze (4 metres in length). The winze under the 70 level on A and B lodes has been temporarily suspended, and the men put to drive the eastern end on the same lode.—Crosscuts. All these are in hard schist, and no change of importance has occurred to report on.—Stopes. These continue to produce as was reported on the 3rd inst.—Stabioli Mine. In the Anza level north the lode is 1 metre wide, and mixed with fine pyrites throughout. A trial winze has been commenced under this level, on the last ore-shoot that was found, and having attained the object for which it was started, has been temporarily suspended. The branch at the bottom is valued at 3 tons of 1 ounce 5 dwts. per fathom. The winze in the Stabioli level south carries a lode 1,30 metres wide, mixed throughout with crystallised pyrites, and will be continued a little deeper.—Kint Concession. The floor of the Guja adit has been stoped to the end and driving been commenced, while a tram-road is also being laid.—Machinery. All the machinery is working satisfactorily. It is expected that the water in the incline shaft will be forked to the 150 fathom level in two or three days. The forking of the Pozzone Mine has been delayed by a heavy rainfall, which refilled the Respini and Testone shafts. Larger working barrels have been received, and are expected to be ready for working on the 18th inst., when the forking will undoubtedly proceed more rapidly.—Val Toppa. These works will be reported on the monthly report for August.—(Signed) W. Henwood Trelease, T. Henry Messa.

PAHANG CORPORATION.—Sungei Lembing, June 6: beg to submit to you progress report of mining operations for the month of May:—Pollock's vertical shaft. The depth has been increased by a further 12 feet, total depth 237 feet, which is the point that No. 3 crosscut will be opened from southward towards the lode. We have broken out sufficient ground in sinking on the south side of shaft to give standing room for the miners to work clear of the shaft when driving is started. I expect to be about finished with the sinking by the end of current month, when the plunger lift will be placed in position, then there will be 60 feet of shaft timbering to do, which I intend doing, and carry on work in the Nos. 2 and 3 crosscuts at the same time.—Drive from Campbell's. The crosscut north mentioned in last report was driven 14 feet, where it met with the lode on the hanging wall, and on driving about 4 feet eastward the drive from Pollock's shaft was intersected. The drive on the hanging wall branch mentioned in last report was driven 34 feet, when it holed to crosscut mentioned above. The vein or lode formation we met with at point of intersection with B winze has proved to be a true crosscourse. After driving a few feet in the hanging wall drive we met with it crossing the lode at right angles, and up to this point we had no tin in the drive; as soon as the drive got to the east side of crosscourse we met with ore worth 8 per cent. We drove southward on the crosscourse a distance of 18 feet. It was 3 feet wide in places. As there was no signs of meeting with any tin stone up to that point I ceased driving further. The total length of the drive from Campbell's to the point of intersection with No. 1 below adit from Pollock's shaft is 713 feet; length driven on odd in No. 1 below adit 221 feet, which makes the total length of drive from Campbell's crosscut to the crosscut driven from Pollock's shaft 934 feet. Total length of tinground passed through 500 feet, which is divided into four sections and let to four different tribute parties, and each party keeps five head of stamps running. The ore sent to the mill from each section for the past month was of very fair quality. You will remember the drive back west from the bottom of a winze that has been mentioned in previous reports. In the west end of this drive where a heave was met with I have started to sink a winze right on the heave to see how far we may be able to sink before being beat out with water. For the few feet we have sunk the water is not very heavy, and so far the ore we have obtained is of first class quality.—Jeram Batang. The No. 1 above adit west has been driven a further 49 feet, making the total length from crosscut 92 feet. The lode is 5 feet wide with a small horse of mullock in the centre, and I am glad to say the footwall portion is of very fair quality, and I think we will soon have payable ore as well on hanging wall. We have met with payable ore here sooner than was expected, and should we not meet with a blank shortly we may have a long shoot of payable ore to the westward.—(Signed) William Straughan.

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A NEW UNION BOAT.—A new twin screw Royal Mail steamer *Norman*, which has been built for the Union Steamship Company's South African service, was successfully launched at Belfast on Thursday by Messrs. Harland and Wolff. The ceremony of christening the *Norman* was performed by Lady Evans, wife of Sir Francis Evans, K.C.M.G., M.P., deputy Chairman of the Union Steamship Company. The new vessel is 490 feet long, and has a breadth of 53 feet, with a gross tonnage of 7500. She is constructed of steel, and is fitted with twin screws, so that in the case of one set of engines being disabled the other set will still be able to maintain a fair speed, and enable the ship to proceed on her voyage. Such a condition of affairs actually happened on a recent outward journey of the *Scot*. The *Norman* is designed to carry a large cargo, or, if necessary, considerable numbers of troops. She also has accommodation for a large number of passengers of all classes. She is fitted with nine watertight bulkheads, and is provided with boats in excess of the Board of Trade requirements. She is appointed to sail from Southampton on her first outward voyage on November 10, and to leave Cape Town homewards on December 19.

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A PARTY of prospectors have just returned to Rat Portage from a tour through the Seine River country, Ontario, and give glowing accounts of the indications held out by a property located in that district, to be known in future as the Alice A, says the *Canadian Colliery Guardian*. The vein, which is declared to be a contact vein, is traceable for several miles, running east and west, with an occasional dip, but as far as surface indications can be relied upon, gives every promise of depth and permanency. Port Arthur parties have secured a location on an extension of the vein, and are so far satisfied. The property came into notice through the report of some Indians, that they had discovered a rich vein.

AUSTRALIAN BROKEN HILL CONSOLS. — The mining manager reports by mail for the fortnight ended June 7: Block 96. Main shaft, 280 level east prospecting drive. Stopes of No. 4 rise driven 21 feet. The rich vein still maintains its value, yielding hornsilver, chloride, iodide, sulphide, and native silver, the gangue being iron and quartz. Have raised 1 ton 3 cwts. 3 qrs. 7 lbs. ore, containing 1242 ounces silver. The outlook is still promising. No. 6 rise, 280 feet level east, driven 5 feet, total 13 feet. The lode here is small, consisting of carbonate of iron and quartz, carrying a little galena. The pyrites vein is very strong.—280 level west. Stopes driven 10 feet. As the shoot of ore is taking a south-westerly course on the plane of the lode, and parallel to the incline, we are now cutting plat for windlass, and preparing to lay rails. The lode continues to yield galena and carbonate of lead. Incline sunk 3 feet, total 555 feet 6 inches. Lode smaller and well defined, consisting of carbonate of iron and calcite, showing a little pyrites. No. 5 east of incline driven 2 feet 6 inches, total 43 feet 6 inches. No change. No. 4 east of incline driven 12 feet, total 225 feet. No change. Lode showing a little galena, fahlerz, and cobaltite. No. 1 rise off No. 4 east of incline driven 9 feet 6 inches, total 22 feet 6 inches. The lode here is strong and well defined, carrying galena and a little fahlerz. Tributer dressing ore has dressed a small parcel of lead ore, which will be sampled and assayed next week.—Note. The quantity of rock mined during the fortnight was 469¼ cubic feet.

BRILLIANT BLOCK.—Mine manager's report for fortnight ending May 30: Underlie shaft deepened 12 feet, total below No. 8 plat 92 feet. The reef is 3 feet thick, medium quality. No. 3 level west extended 20 feet, total from shaft 74 feet. Formation is getting smaller, and carries no stone. The two stopes over the level carry a reef 3 feet thick of good quality. No. 5 level east extended 21 feet, total from shaft 202 feet. The reef in face is 6 feet thick of fair looking stone. In the four stopes over this level the reef varies from 1 to 7 feet thick, fair quality.—No. 4 level west. We are stoping in two stopes over this level on about 2 feet of stone of low quality.—No. 4 level east. No. 2 winze from this level has been deepened 10 feet, total from level 64 feet, and holed into No. 5 east stopes. The footwall stopes over the level turn out usual quantity of medium quality stone from reef about 2 feet thick. Stoping in hanging wall stopes on 1 foot good stone. Stone raised 760 tons. Stone crushed 676½ tons for 953 ounces 8 dwts. of gold.

BALAGHAT MYSORE.—Joseph Pryor, June 26: Ogle's shaft. This shaft is now down about 25 feet below the 800 feet level. The lode is of a very kindly appearance, and yields a little quartz, which I am hoping will ere long improve, both in size and quality. The 800 feet level north has been extended 6 feet 6 inches, or 155 feet 6 inches from the shaft. The quartz is about 1 foot wide, and assays 1 ounce 6 dwts. 17 grains of gold per ton. We expect to communicate this drive with the level south of Haine's shaft within the next month. The No. 1 winze in the bottom of this level has been sunk 7 feet 6 inches, or 30 feet below the level. The quartz is over 1 foot wide, and assays 5 ounces 4 dwts. 7 grains of gold per ton. The stopes in the back of this level yield quartz of from 12 to 14 inches wide, and assay on an average 1 ounce 10 dwts. 3 grains of gold per ton. The stopes in the bottom of the 730 feet level north produce quartz of from 6 to 14 inches wide, and assay on an average 1 ounce 14 dwts. 11 grains of gold per ton. The stopes in the back of this level yield quartz of from 9 inches to 1 foot wide, and assay on an average 18 dwts. 17 grains per ton. The stopes in the bottom of the 660 feet level north produce quartz of from 6 inches to 1 foot wide, and assay on an average 19 dwts. 6 grains of gold per ton.—Haine's Shaft. In consequence of the increased water at this shaft, it has been impossible with our present donkey pumps during the past fortnight to make any comparative progress with either deepening the shaft or extending the 870 feet level. I am, however, glad to say the water is now all in fork, and the men are engaged cleaning up the shaft preparatory to resuming the sinking. The quartz is from 1 to 1½ feet wide, and assays 7 dwts. 10 grains of gold per ton. I am pleased to say the new Cameron pump ordered some time ago for this shaft is now well on its way from England. With its aid I am hoping we shall not only be able to fully cope with the water, but to sink the shaft as well as drive the levels with satisfactory results. The quartz in the 870 feet level north is about 14 inches wide and assays 6 dwts. 7 grains of gold per ton. The lode in the 870 feet level south is at present somewhat disordered, but it will, I think, very soon improve; the quartz assays 5 dwts. 2 grains of gold per ton. The 800 feet level south has been driven 21 feet 6 inches, or 254 feet from the shaft. The quartz is 1 foot 6 inches wide, and assays 15 dwts. 7 grains of gold per ton. We had fully anticipated communicating this drive with the levels in the bottom of the midway winze at the 730 feet level south ere this, and the distance between the two points has been more than spent; but it now appears the winze is on another part of the lode. We purpose shortly to cross cut to this winze, and to effect the much desired communication at an early date. The No. 1 winze in the bottom of this level has been sunk 9 feet, or 35 feet 6 inches below the level. The quartz is 15 inches wide, and assays 5 dwts. 2 grains of gold per ton. The stopes in the back of this level yield quartz of from 1 to 1½ foot wide, and assay on an average 15 dwts. 10 grains of gold per ton. Stopes in back of 730 south produce quartz of about 1 foot wide, and assay 18 dwts. 2 grains of gold per ton. Tennant's Shaft. This shaft has been sunk 8 feet or 63 feet below the 350 feet level, the lode is of a promising appearance, but the ground is hard for sinking, and just now it does not yield sufficient quartz to value; the indications are, however, favourable for an improvement, and I am hoping we shall soon see it. The 350 feet level north has been advanced 15 feet or 106 feet from the shaft, the ground is very bad just now for driving, and the quartz is therefore smaller than usual, being now only from 6 inches to 1 foot wide, and assays only 4 dwts. of gold per ton. This end will also, I think, soon improve. The No. 1 winze in the bottom of this level has been sunk 5 feet 9 inches or 7 feet 3 inches below the level, the quartz is about 3 feet wide, and assays 11 dwts. 7 grains per ton. The rise in the back of this level has been advanced 7 feet 6 inches or 19 feet above the level, the quartz varies from 1 foot 6 inches to 2 feet wide, and assays 6 dwts. 7 grains. per ton. The 350 feet level south has been extended 20 feet 3 inches or 121 feet 6 inches from the shaft, the lode continues in a more or less disturbed state, and is consequently at present unproductive. We are hoping we shall soon get through this disturbance, and to enter a more congenial and productive character of ground. The winze in the bottom of this level has been sunk 4 feet 9 inches, or 10 feet below the level; the quartz varies from 6 inches to 1 foot and upwards, and assays 5 dwts. 2 grains per ton.—Surface. The engineer is now pushing on with the erection of the pumping engine at Tennant's, and hopes shortly to get it completed. I am pleased to say the building of the additional rooms for the Italian miners have been completed, and the new men are now comfortably provided for.—Health. The general health of the camp continues fairly good.

BAYLEY'S REWARD.—Sylvester Shaft 220. During the week the water has been sufficiently lowered to enable us to resume work at the 220 feet level south drive, which is being pushed forward in a westerly direction to ascertain as quickly as possible what the water is coming from. It has been extended 8 feet, total now driven being 55 feet. The ground we are now passing through is hard with open floors or joints in the rock, from which the water is now coming, and, judging from appearance, I should say is connected with a body of stone or the main reef further west. We are also in hopes when the main body of stone is reached that a further supply of water will be obtained. 100 feet level has also been advanced 18 feet, total 68 feet, cutting what appears the same fault we had at the 220, consequently we have now same as the other to drive more to the west, following the fault or slide.—100 feet Level. Winze to connect with the 160 drive has been sunk 7 feet, full depth being 55 feet. Lode strong and well defined. South drive 100 feet has been driven 5 feet, total 121 feet. At this point the lode took a sharp turn to the west, and at present is rather hard and pinched to about 2 feet in thickness, which will probably open out again to its usual size. 100 feet stopes continue to yield stone of the usual value and looking well.—Gordon and Bagelhole shafts: No particular change to report.—Everard shaft, South drive at the 50 feet level driven 3 feet, total 61 feet. Lode at present about 2 feet 6 inches, and this morning showing very nice gold indeed, being a continuation, I think, of that cut in Cockshott shaft towards which the drive is being advanced. Cockshott shaft sunk 5 feet, total 55 feet, lode same width, fully 6 feet, with a portion towards the hanging wall carrying coarse gold, the north and towards Everard shaft looking very well indeed.—Quartz on surface and in stopes. We have had the quantity of stone measured as near as we could, and find that the ore dumps at Sylvester, Gordon and Bagelhole shafts contain 3200 tons, and from Everard and other shafts 600. I also estimate that we have broken in the stopes and drives below about 200 tons, making the total quantity in hand about 4000 tons. Tram line from the ore dumps to the battery has been completed, and enables the stone to be taken to the battery more rapidly than carting. Water, I am sorry to say, has not held out as we were led to anticipate from the strong influx when at first struck, and with the battery this week we have had a good deal of broken time owing to there not being sufficient to keep it supplied, and I am afraid unless a further supply is met with or rain it means that we will have to return to the water carting to keep even five stampers employed a portion of the time. This, I am afraid, will considerably affect our returns; still, at the least, we hope to maintain the usual yield previous to the last fortnight until more water is obtained, which we trust we shall have shortly.—Tailing pump. A tailing pump or some other appliance will be required to lift the tailings from the battery. If you would kindly make enquiries as to the best kind to adopt where there is not a large supply of water, and can obtain one suitable, we think you had best forward one at once, care should be taken that it will lift 40 feet or over, and of sufficient size for at least a 20 stamp battery. By consulting some engineer who in Melbourne is acquainted with the latest appliances for this work you will be able to obtain the necessary information. Week's return is 753 ounces of gold, as previously taken from the ore dumps and stopes below.—Gold dispatched. To-morrow there will be dispatched by escort 1503 ounces smelted gold.

CAPE COPPER.—Captain Henwood, May 31: Ookiep. The rock in each of the 130 fathom levels east and west of the north crosscut is still yielding stones of codper ore. The 117 fathom crosscut north of the main east level is producing occasional stones of copper ore. No. 76 winze has been communicated with the 105 fathom level south east of No. 11 level, thus causing good ventilation in this part of the mine. The 92 fathom crosscut (No. 19) south of main east level is yielding stones of copper ore. This is the first time copper ore has been seen in this driving. The 92 fathom level east of south crosscut south of 46 winze has since the last report produced some rich stones of copper ore, but the forebreast at the present time is again without copper. We have started another driving east from this south cross cut (situated about 15 fathoms south east of 42 winze) as the stope over this point (south east of 42 winze) is worth 9 tons of copper ore, and apparently is dipping in this direction. The drive in back of 92 fathom level south east of 42 winze having fallen off in yield it has been temporarily suspended. The stope in the bottom of this drive is producing 9 tons of copper ore per fathom. In the 80 fathom level (No. 16) south east of the new shaft the men are put to drive north east from the extreme end to communicate with the drive in back of the 92 fathom level south east of 42 winze. We have about 5 fathoms to hole. The 80 fathom level (No. 20) north east of 49 winze at times presents spots of copper ore. The intermediate level between the 80 and 68 fathom levels south east of the new shaft is yielding stones of copper ore, but not sufficient to value. The rock in the 48 fathom crosscut south of main east level is still spotted with copper ore.—Trial Mines, Nababeep South. We have a few feet more to sink in the shaft, which we hope will be completed by the middle of this month, when we shall start to put in the skiproad from surface to the 74 fathom level.—Spectakel. The stopes throughout the mine continue to yield their usual quantities of copper ore.—Ookiep East. The stope in bottom of the 66 fathom level south east of winze has fallen off a little in yield, the ground is again containing more iron.—Copperberg. The stope in adit level east of No. 1 south crosscut is yielding about 4 tons of copper ore per fathom, and the stope in adit level east of whim shaft is worth 2 tons per fathom.—Returns for May, Ookiep, 2050 tons of 17 per cent. Spectakel, 150 tons of 28 per cent.—Arrival at Port Nolloth. The *Golconda*.—Tilt Cove, East Mine.—Captain W. R. Toms: Output for April, 5420 tons of 4 per cent. wet assay.—Arrivals at Swansea. The *Fez*, with 670; *Austerlitz*, with 1840; and the *Duchess of Roxburgh*, with 2325 tons of ore.

HARRIETVILLE.—Fortnightly report of Mr. T. G. Davey, superintendent, dated June 8: Mons Meg Mine. Drive north of main winze, 100 feet below tunnel D, advanced 15 feet, total 114 feet. Lode 2 feet wide, and carrying a little gold, but not in payable quantities. It is possible that the main shoot has been thrown north by the last fault traversed in the winze, and that we are now approaching its continuation here. Crosscut west from same drive extended 8 feet traversing veins of quartz of no value. Rise at back of south drive at same level, advanced 15 feet. Lode 2 feet wide, and valued at about 10 dwts. per ton. Winze on north shoot below tunnel J sunk 8 feet. Vein 3 feet wide, and varying in quality from 5 to 10 dwts. per ton.—Stopes. Lode in stopes at back of drive south of tunnel D 15 feet wide, but of low grade. Commenced to stope south at back of 240 feet level below J, where lode is 2 feet wide and payable. Underhand stope of 44 feet level almost exhausted. About to stope at back of same level.—Saint Bernard Mine. Men still employed retimbering and securing old drives and tunnels. Found a little gold in one of the many lodes traversed by the bottom tunnel as well as in a vein at mouth of No. 3 tunnel. Will develop these veins later on.—Returns. We cleaned up on the 29th ult. for the following returns—viz., Mons Meg, 554 tons, yielding 97 ounces 12 dwts. 14 grains. of gold. Pyrites works 41 tons for 32 ounces. Total for the four weeks 129 ounces 12 dwts. 14 grains of melted gold.

JAVALI.—The directors have received advices from their manager, dated May 18: Our operations during the past month were confined to San Pablo and the No. 2 stope. From the former were raised 157 tons of quartz. The ledge still produces payable ore to the west of the rise, but on going east it became poor and has been stopped. At present we are opening up the stope from the back of Pollock's tunnel. As the stope advances I expect to meet with a better quality ore. From No. 2 stope 60 tons of quartz were raised. The lode has undergone no change since last month. Labour is still very scarce. During the month five stamps, working 18 days, crushed 207 tons of quartz, which yielded 76½ ounces of gold, and from two arrastras 7 ounces; total 83½ ounces of gold. The remittance is valued at £167, the cost for April being £187.

MOUNT LYELL.—The London committee have received the following report from the Melbourne board for the week ending 31st May: Engine Shaft, 100 feet Level. The south drive has been advanced 8 feet, total 15 feet. The face is in similar country to that reported last week.—50 feet Level. The south drive has been advanced 4 feet, total 130 feet. There is about 15 inches of nearly pure copper pyrites lying along the eastern edge of the main pyrites body.—Winze. The winze has been sunk 4 feet, total 10 feet. No change to report. The brace and windlass have been rigged over same.—Stopes. The stopes at each end of the ore shoot are being worked as usual, and continue to furnish rich ore.—No. 2 Shaft 100 feet Level. The crosscut west has been driven 4 feet, total 46 feet. There is no change to report; the rock is still very hard.—No. 5 Tunnel. The contractors having thrown up their contract, wages men have been put on repairing the tunnel. This has been completed, and two shifts are working in the face. The third shift will be put on as soon as the men sent for arrive.—Ore Raised. 197 bags of ore, weighing 12 tons 6 cwts. 1 ounce, containing 10,173 ounces silver, and 3 tons, 4 cwts. 2 qrs. 16 lbs. copper, or an average of 846 ounces silver and 26 per cent. of copper per ton, have been raised.—Ore Despatched. 135 bags, weighing 8 tons 1 cwt. 2 qrs. 12 lbs., containing 6984 ounces silver and 1 ton 14 cwts. 5 lbs. copper.

MOUNT ZEEHAN (Tas.)—Manager reports for week ended June 5: —Argent section. Main engine shaft No. 6 lode intermediate level south. Ore raised 37 tons 14 cwts., good seconds and a few cwts. of firsts. Lode 1 foot 6 inches wide. 72 feet level south extended 5 feet 6 inches, total 15 feet. Ore raised 7 tons 6 cwts. medium seconds. Lode 1 foot 6 inches wide. Stope south of rise. Ore raised 52 tons good seconds. Lode 6 feet wide, carrying good ore throughout. 132 feet level south extended 13 feet 6 inches, total 114 feet. Ore raised 25 tons 7 cwts. fair seconds. Lode 3 feet 6 inches wide of good milling ore. Crosscut west to No. 7 lode extended 7 feet 6 inches, total 62 feet 6 inches. No. 3 lode, No. 2 shaft, No. 1 level north extended 11 feet 6 inches, total 21 feet 6 inches. Lode 4 feet wide, carrying galena, but not of much value at present. Level south extended 10 feet 6 inches. Lode is 6 feet wide of masterly appearance, and carrying nice streaks of galena. Concentrator has been running 38 hours, and milled 127 tons seconds for 22 tons concentrates, containing about 16 tons 13 cwts. of lead, and 1566 ounces of silver.

MYSORE REEFS.—Fortnightly report of Captain M. Scantlebury, dated 26th June: Underlie Shaft. The 250 feet level north has been advanced 17 feet 3 inches, now 63 feet 6 inches from shaft. The lode is 3 feet wide, composed of quartz, with a little arsenical and iron pyrites. I have taken several samples, which have varied from an ounce to 6 dwts. of gold to the ton. The plat at this level is well nigh completed, and in cutting this plat we have made a most important discovery. The best part of the lode is to the west of the shaft. There is a horse of ground between from 3 to 4 feet thick. There is a lode over 3 feet wide to the west of the shaft, and we are blasting this out to resume the sinking of the shaft on the 1st of July on the main part. This part is producing beautiful gold quartz. The plat is completed at the 200 feet level in the vertical shaft, and to-day I am putting a rock drill to crosscut west in 250 feet level to intersect the main part of the lode, and I hope in my next to be in a position to write you more fully.—Vertical shaft. The 200 feet level north has been extended 16 feet 9 inches, now 99 feet from shaft. The lode is 2 feet wide, composed of quartz, country rock, and a little iron pyrites. There is a leader of quartz against the hanging wall producing really beautiful ore. Yesterday some of the best stones of gold quartz came up that I have ever seen. Our assays have varied very much; some have gone several ounces of gold to the ton. The lowest has been 15 dwts. I do not care to report these high assays because the lode is so changeable. 200 feet level south has been advanced 15 feet 3 inches, now 98 feet 6 inches from shaft. For the past 6 feet the lode has been somewhat disturbed and intermixed with country rock. Our samples have varied in value from 12 dwts. to 4 dwts. 4 grains. Yesterday the lode was looking much better, and producing good stones of gold quartz. You will not fail to observe that a good mine is being opened up, we have driven about 200 feet in the lode north and south of the vertical shaft with a good lode in each end. In the underlie shaft we have a good lode north and south. This is not a mere pocket, but a continuous run of ore. Next mail I will send you a tracing of the ground to the north, indicating therein where I think a new vertical shaft should be sunk for your advice. We have resumed the sinking of the vertical shaft to-day by hand labour.—Sinking new well. I have started a new well to obtain water for the work people. This has been sunk 28 feet. We have a little water, and I expect in 10 feet more sinking to obtain a sufficient supply.—Surface. We have decided to start the first 10 heads of stamps the 4th day of July. I have lined out the road, and cut away the jungle to the new railway station, and have a gang of men making the road.

MILLS' DAY DAWN UNITED.—Mine manager's report for fortnight ending May 21: Underlie shaft sunk and timbered 7 feet; total distance from No. 8 plat 50 feet. No. 8 level west driven 6 feet; total distance from shaft 144 feet. The country is bad for shooting. No. 7 level east (hanging wall) driven 19 feet and holed to hanging wall drive No. 7 west. Total distance from eastern crosscut to western level is 230 feet. The stopes over this level carry from 2 to 4 feet medium quality stone.—No. 7 level west. The winze has been sunk 22 feet, making total depth 32 feet. The stopes over this level average 10 feet good quality stone.—No. 6 level east. The stopes over this level carry from 3 to 5 feet good stone.—No. 6 level west (footwall). Driven 8 feet on 2 feet of poor quality stone. The stopes over this level average 3 feet of medium quality. Intermediate level driven 14 feet; total from shaft winze 44 feet, carrying 2 feet good quality stone.—No. 5 level east. Stopes over this level average 6 feet of medium quality stone. No. 5 level west. Winze sunk 11 feet; total distance from level 24 feet on 2 feet of fair quality stone. Stopes over this level carry 6 feet of fair quality stone.—No. 4 level east. Stopes over this level will average 6 feet of poor quality.—No. 4 level west. The leading stope over this level carries 2 feet of medium quality stone. Stone raised 1900 tons.

MYSORE GOLD.—R. Hancock, 26th June: Mining operations for the fortnight ending 25th June: Rowse's Shaft. Driving north of the 1460 crosscut west, this end has been driven 20 feet 6 inches, making a total distance driven of 36 feet. The lode is 1 foot 6 inches wide, assaying 9 dwts. 2 grains.—1360 feet Level North, South of Crosscut. This end has been driven 1 foot, making a total distance driven of 113 feet 10 inches. The lode is 1 foot 6 inches wide, assaying 3 ounces 2 dwts. 6 grains.—1360 feet Level North of Winze. The rise in the back of this level has been put up 22 feet 6 inches, making a total height of 45 feet 6 inches. The lode is 5 feet wide, assaying 6 dwts. 12 grains. The winze in the bottom of this level has been sunk 11 feet 6 inches, making a total depth of 87 feet 6 inches. The lode is 2 feet 6 inches wide, assaying 3 dwts. 22 grains.—1260 feet Level North. The rise in the back of this level has been put up 14 feet, making a total height of 90 feet 6 inches. The lode is 5 feet wide, assaying 1 ounce 12 dwts. 16 grains. There are five stopes in the back of this level, the average width of the lode being 4 feet 2 inches, giving an average assay of 8 dwts. 21 grains.—1260 feet Level South. There are two stopes in the back of this level, the average width of the lode being 1 foot 6 inches, giving an average assay of 1 ounce 14 dwts. 13 grains. Driving south on the fold in the back of this level has been driven 15 feet, making a total distance driven of 52 feet 6 inches. The lode is 3 feet wide, assaying 2 ounces 3 dwts. 6 grains.—1160 feet level north. There are four stopes in the back of this level, the average width of the lode being 1 foot 7 inches, giving an average assay of 19 dwts. 13 grains.—1160 feet level south. The lode in the stope in the back of this level is 2 feet wide, assaying 2 ounces 19 dwts. 14 grains.—1060 feet level north. The lode in the stope in the back of this level is 1 foot 6 inches wide, assaying 2 ounces. We have two pares of men engaged stripping down side in the bottom of this level in which the lode averages 1 foot wide, assaying 6 dwts. 12 grains.—990 feet level north. We have a pare of men engaged stripping down side in the back of this level in which the lode is 1 foot wide, assaying 11 dwts. 17 grains.—890 feet level north. The lode in the stope in the back of this level is 3 feet wide, assaying 3 dwts. 22 grains.—780 feet level north. This end has been driven 8 feet 6 inches, making a total distance driven of 496 feet. The lode in the stope in the back of this level is 2 feet wide, assaying 11 dwts. 17 grains.—620 feet level north of crosscut. This end has been driven 3 feet 6 inches, making a total distance driven of 243 feet. There is nothing here to report. There are three stopes in the back of this level, the average width of the lode being 2 feet, giving an average assay of 13 dwts. 11 grains.—466 feet level north of No. 1 crosscut. This end has been driven 13 feet, making a total distance driven of 26 feet 6 inches. The lode is 1 foot wide, assaying 5 dwts. 5 grains.—400 feet level north. Cutting out ground in the back of this level for Crocker's shaft. The lode is 4 feet wide, assaying 3 dwts. 22 grains.—296 feet level north. Driving north on the branch met with in the level above has been driven 10 feet. The lode is 2 feet 6 inches wide, assaying 1 ounce 0 dwts. 21 grains. Cutting out ground in the back of this level for Crocker's shaft. The lode is 2 feet wide, assaying 3 dwts. 22 grains.—236 feet level north. The drift north on the quartz, met with in the eastern side, has been driven 9 feet, making a total distance driven of 103 feet 9 inches. There is nothing here to report. The lode in the stope in the back of this level is 1 foot 6 inches wide, assaying 2 ounces 19 dwts. We have also 18 men stripping in the back of Crocker's shaft at this level. The rise in the back of this level has been put up 7 feet, making a total height of 186 feet, and holed to Crooker's shaft.—Crocker's shaft. This shaft has been sunk 4 feet 8 inches, making a

total depth of 172 feet 2 inches, and holed to 236 rise.—Taylor's shaft, 466 feet level north. There are two stopes in the back of this level, the average width of the lode being 3 feet, giving an average assay of 13 dwts. 16 grains.—Gilbert's shaft, 650 feet level north. This end has been driven 18 feet, making a total distance driven of 387 feet. There is nothing here yet to report.—520 feet level north. There are two stopes in the back of this level, the average width of the lode being 2 feet, giving an average assay of 19 dwts. 22 grains.—520 feet level south. The lode in the stope in the back of this level is 1 foot wide, assaying 13 dwts. 1 grain.—360 feet level north. There are two stopes in the back of this level, the average width of the lode being 1 foot 10 inches, giving an average assay of 1 ounce 0 dwts. 5 grains.—290 feet level north. There are four stopes in the back of this level, the average width of the lode being 1 foot 11 inches, giving an average assay of 8 dwts. 1 grain.—290 feet level south. The lode in the stope in the back of this level is 3 feet wide, assaying 7 dwts. 19 grains.—180 feet level south. Taking away arches of ground in the back and bottom of this level; the lode averages 2 feet 9 inches wide, giving an average assay of 1 ounce 16 dwts. 5 grains.—Tennant's Shaft. We have a pare of men cutting out a cistern plat at the 600 feet level.—600 feet level north. This end has been driven 17 feet; there are some small branches of a mixed character, containing a little quartz in the end.—520 feet level north. The rise in the back of this level has been put up 9 feet 6 inches, making a total height of 84 feet 6 inches; the lode is small and poor. There are two stopes in the back of this level, the average width of the quartz being 1 foot 8 inches, giving an average assay of 9 dwts. 3 grains. We have to-day taken one of the machines from stoping in the back and put it to sink a winze in the bottom of the level 115 feet north of the shaft.—360 feet level north, south of crosscut. The winze in the bottom of this level has been sunk 7 feet, making a total depth of 50 feet; the lode is 7 inches wide, assaying 6 dwts. 12 grains.—290 feet level south, south of crosscut. This end has been driven 3 feet 3 inches, making a total distance driven of 77 feet 3 inches; the lode is 8 inches wide, mixed, No assay made.—Schaw's shaft, 450 feet level north crosscut east. This end has been driven 2 feet 6 inches, making a total distance driven of 25 feet 6 inches. The winze in the bottom of this level has been sunk 4 feet 3 inches, making a total depth of 86 feet 6 inches. The lode is 1 foot 3 inches wide, assaying 2 ounces 1 dwt. 6 grains. The lode in the stope in the back of this level is 1 foot wide, assaying 1 ounce 4 dwts. 9 grains.—450 feet level north, south of crosscut. The rise in the back of this level has been suspended, and the machine put to sink a winze in the bottom of this level 20 feet north of No. 2 rise, which has been sunk 4 feet. The lode is 4 feet 6 inches wide, assaying 9 dwts. 2 grains. The lode in the stope in the back of this level is 1 foot 6 inches wide, assaying 11 dwts. 17 grains.—320 feet level north. The winze in the bottom of this level has been sunk 2 feet, making a total depth of 158 feet 3 inches. The lode is 1 foot wide, mixed, assaying 3 dwts. 22 grains.—320 feet level, north of crosscut. The rise in the back of this level has been put up 8 feet 6 inches, making a total height of 90 feet. The lode is 1 foot wide, assaying 5 dwts. 5 grains.—320 feet level, south of crosscut. This end has been driven 3 feet 6 inches, making a total distance driven of 172 feet. There is nothing here to report. The lode in the stope in the back of this level is 1 foot 6 inches wide, assaying 3 dwts. 22 grains.—220 feet level north. This end has been driven 3 feet, making a total distance driven of 262 feet.—McTaggart's shaft. This shaft has been sunk 7 feet, making a total depth of 20 feet 6 inches below the 450 feet level. The lode is 9 inches wide, assaying 10 dwts.—450 feet level south. The lode in the stope in the back of this level is 1 foot 6 inches wide, assaying 6 dwts. 12 grains.—320 feet level north. This end has been driven 18 feet, making a total distance driven of 253 feet. The lode is 6 inches wide, assaying 6 dwts. 12 grains.—Glen shaft 250 feet level north. This end has been driven 12 feet 6 inches, making a total distance driven of 1365 feet 3 inches. We have to-day suspended the driving of this end and put the machine to resume the driving of the most northern cross cut west. The crosscut east in this level has been driven 3 feet 6 inches, making a total distance driven of 231 feet 6 inches.—Ribblesdale's shaft: This shaft has been sunk 13 feet 6 inches, making a total depth of 322 feet 6 inches.—1060 rise. This has been put up 3 feet, making a total height of 14 feet. The rising has been hindered by the putting in of a stull and other timber work.—William's shaft, crosscut east at 173 feet level. This has been driven 2 feet 6 inches, making a total distance driven of 50 feet 6 inches.—East Prospect shaft No. 2. This shaft has been sunk 4 feet, making a total depth of 84 feet. We still have a great deal of water to contend with. The health of the camp is good.

NAMAQUA COPPER.—Abstract of superintendent's report for May: Tweefontein Mine. Shaft below the 115 fathom level. There is no change to report at this point.—115 fathom level east. This level has been connected during the month with the driving west of No. 25 winze. There has been no change in the ground since last report. Worth 5 tons of ore per fathom.—115 fathom level west. This level is being driven in the direction of No. 27 winze. The ground is slightly mineralised, but is of no value.—115 fathom level driving west of No. 25 winze. The ground here is similar in every respect to that of the 115 fathom level east to which it is now connected. Worth 5 tons of ore per fathom.—105 fathom level east. This level is still being driven through a large body of mineral of fairly good value. Worth 6 tons of ore per fathom.—105 fathom level west. The driving here, which is 9 feet by 9 feet, has been resumed at this point in ground of equal value throughout. Worth 10 tons of ore per fathom.—105 fathom level west No. 27 winze. This winze is being sunk through a very valuable section of ground, the ore being chiefly blue as in the driving above. Worth 12 tons of ore per fathom.—95 fathom level east No. 26 winze. The ground here has slightly improved in value. Worth 6 tons of ore per fathom.—95 fathom level west. This level is without change since last report. Worth 4 tons of ore per fathom.—85 fathom level west. There is also no change at this point. Worth 2 tons of ore per fathom.—Stopes. 105 fathom level west side of level, 95 fathom level west bottom of level. Both these stopes are still yielding well, and are each worth 10 tons of ore per fathom.—New Shaft. 25 fathom level east. The ore ground having entirely given out, driving has been suspended until the north and south sides have been proved by cross cutting in the ore body at a few fathoms behind the present forebreast.—25 fathom level west. This level is still opening out a very valuable section of ground. Worth 10 tons of ore per fathom.—Phillips' Shaft. There is no change at this point.—Shipping. The *Lord Clyde* arrived at Swansea from Port Nolloth on the 4th July with about 893 tons of ore.—Output for June. 500 tons of ore of 30 per cent.

NINE REEFS.—Fortnightly report of Captain Woolcock, superintendent, dated 26th June: Vyvyan's shaft. The cross cut west at the 460 feet level has been further advanced 10 feet 7 inches, total distance from west side of level 28 feet 11 inches, but up to this time have not discovered anything of value. There is no change to notice in the character of the ground, which is a hard black schist, and at times carrying a little carbonate of lime and pyrites. The cross cut driving east at this level has been driven 12 feet 10 inches, which is the first measurement. At 5 feet from the level we intersected a small vein of good looking quartz about 2 inches wide, which on being sampled was found of no value. The ground is of a similar character to that in the west cross cut.—Bennett's shaft. On the 11th inst. we resumed the driving of the cross cut west at the 145 feet level, since when it has been extended 12 feet 9 inches, making a total distance of 253 feet 7 inches from the level.—South shaft. The cross cut west has been advanced 16 feet 11 inches, making a total distance from shaft 27 feet 5 inches. At a distance of 23 feet 6 inches we intersected the lode, which is about 4 feet wide, composed of soft schist and quartz, but of a much more promising appearance than when it passed through the shaft at 96 feet from surface, and looks as if it will improve as we go deeper. The men are now engaged driving south so as to take out sufficient ground for the rise of the shaft, after which we shall rise on its course, and communicate with the vertical; when this work is done we shall resume the sinking on the course of the lode below the crosscut. The crosscut east has been driven 10 feet 1 inch, total distance from shaft 18 feet 3 inches. I calculate to intersect the caunter lode at about 120 feet.—Prospecting. The No. 1 shaft has been sunk 3 feet 1 inch, making a total depth of 70 feet 11 inches. The lode is 20 inches wide, and worth by assay 6 dwts. 8 grains of gold per ton. The sinking of this shaft has been much retarted this fortnight through being obliged to timber the hanging wall, and the ground in the bottom is also getting harder, and letting out an increased quantity of water, but I hope to make better progress in the next fortnight. The No. 4 shaft has been sunk 3 feet 6 inches, total from surface 95 feet 1 inch. The ground in the bottom of this shaft is very hard, and the lode pinched and of no value. I have started a shaft to the north of the above, which will be known in future as No. 5, where the lode is 1 foot 6 inches wide, and worth by assay 5 dwts. 4 grains of gold per ton. The other trenches and pits hitherto have been disappointing, and the outcrop appears to be disordered and split up. There is nothing to call for comment in any of our surface operations.—Health. I am pleased to say the weather is much cooler, and the health of the camp continues good.

PALGANJ GOLD.—The following is the manager's report, No. 55, dated Narungo Tin Mine, June 16: Report of work done for two weeks ending June 16: No. 2 shaft. Sinking for the fortnight 9 feet 6 inches; total depth from surface 320 feet 6 inches. In my last report, dated 2nd instant, I mentioned that we had gone through a bar of quartz, after which the footwall of lode was met with, but lode very unsettled. Since then the lode became more settled and about 3 feet wide till yesterday, when we came on to another bar of quartz, which has again disturbed the lode. I do not think that this bar of quartz is very thick, and we shall no doubt get through it in a few days, but I expect the lode will be unsettled again until we get some distance away from the influence of the quartz.

PUNJOM.—The following is the manager's report for April: August Shaft. Bottom drive north is still in very hard ground. The change of ground I spoke of in my last report was only temporary, as the drive is in harder ground than before, and slow progress is being made. We have opened out a large chamber (or plat) at the shaft, so as to have sufficient room for large pump and for hauling the quartz when winding. Distance driven during month 13 feet, total drivage 35 feet 6 inches.—No. 2 Trial Shaft. Work was resumed during the month after we had put a division in the shaft to cause ventilation. The lode is still 4 feet wide, but mixed a little with mullock at present. As we extend we are opening up fairly good stoping ground. Quartz sent to mill from this month during month 43 tons. No. 3 shaft has been sunk to a depth of 63 feet and a drive driven east and west off the shaft; the two drives, including shaft, measure over all 33 feet, and is more or less lode matter. We saved most of it for the mill. It only carries traces of free gold, but we have tested the pyrites and find that this contains a fair amount, which the mill should save. We are driving north to communicate with No. 2 shaft. About 50 tons ready for mill. I have commenced another shaft 280 feet further south than No. 3 shaft. This shaft has been sunk 45 feet, and has struck the same lode formation as in Nos. 1, 2, and 3 shafts at present carrying small leaders of quartz. I have great hopes of meeting with good results in this shaft when we get down to cut the main north and south lode, as we are apparently sinking on a cross lode, the junction of which, with our main lode, should produce good results. This shaft is very near extensive old surface workings, and I am afraid we shall have a little difficulty with water, but the shaft is sufficiently large to admit of a small pump if necessary. West drive, 6 feet have been driven. We have difficulty in keeping the rocks away, as the trucks are almost in constant use trimming quartz. We have a leader in the face of the drive 1 foot wide of low grade stone. South drive has been extended 15 feet 6 inches on the course of the lode. We have occasional patches of quartz which carries gold, but the lode is not yet defined. We have difficulty here also in handling the rock.—Mill gully. A drive was commenced during the month to go under the hill above the mill, so as to cut the continuation of the north and south lode, and north of August shaft. Distance driven 36 feet 6 inches. Stopes are producing large quantities of average stone; estimated quantity of stone raised during the month 860 tons. Milling was carried on for 24 days, crushing 1000 tons for 473 ounces 9 dwts. 12 grains of smelted gold. Concentrates and blanket washing, six Berdan pans treated 18 tons from which we got 27 ounces of gold. We are saving the sluices form the pans for future treatment, also adding concentrates and blanket washings to stock. Sluice headings of which there are immense quantities in thousand of tons lying about the mine stacked by the Chinese when working the mine as an opencast. I had taken to mill about 3 tons, and kept five heads of our new battery going on it for 12 hours, and five heads 12 hours on new mine rock. This was after our general clean up, so that there could not be any chance to mislead us. Both the buttons of gold forwarded to head office were obtained under the same conditions—viz., clean boxes and clean plates.—The result. Five heads 12 hours, mine rock 1 ounce 0 dwts. 4 grains. Five heads 12 hours, mine headings 19 dwts. 12 grains of smelted gold. This was what was taken off the plates only. The samples were taken from different places all over the heaps, and I should think would be a fair average, although, perhaps, some parts of it might mill better than others, but there is no doubt but what it would pay well to treat, even if the bulk only milled half so good, as the only cost would be for tramming to mill and milling. Rainfall shows 17 17-32 inches. General work on surface is being proceeded with in the usual way, and health of the camp is satisfactory.

SOUTH-EAST MYSORE.—Fortnightly report of Captain M. Scantlebury dated June 26: Beresford's Shaft. The 200 feet level north has been extended 18 feet, now 54 feet from shaft. The lode is 3 feet wide, 1 foot 6 inches being solid quartz against the hanging wall from which three samples have been tried with the following result:—Sample No. 1, 12 dwts.; sample No. 2, 1 ounce; sample No. 3, 17 dwts. 14 grains. 200 feet level south has been advanced 17 feet 6 inches, now 53 feet from shaft. The lode is 1 foot 6 inches, wide, assaying 14 dwts. 16 grains of gold to the ton. You will observe that these levels are opening out a good piece of ground for stoping. The plot at the 200 feet level is completed, and the sinking of the shaft resumed to-day. We shall be obliged to sink a few feet by hand labour, and put in a cistern to take up the water before we can sink to advantage with rock drills.—Pigott's Shaft. The cross cut east at the 180 feet level has been extended 4 feet, now 18 feet 6 inches from shaft. The rock is changing a little with small stringers of quartz crossing it. I am in hopes that we shall soon see the lode.—Erection of stamps. We have commenced to take out the necessary ground, and other work in connection with the erection of the stamps is being proceeded with.

VICTORIA AND ALTAMIRA.—The following report has been received from the mine;—June 15: We have been obliged to stop work at the Victor shaft by excessively heavy rain. We are close to the lode, having already cut the Cascaho. We have tried some of the ground coming out of the shaft, and have had a good show of gold from the small leaders in the Cascaho. I think this is the best work that has been done on the mine. The Victoria is a large one, and a kindly lode. While we have stopped the shaft we have put the men on the road to the shaft, considerably shortening it, which will in future save time and expense. This property will turn out very rich before long. The short time that I have been here the more I see of it the more faith I have in it. I never was in a mine that I liked better, and it will not be long before we shall prove what I say. Mr. Broc and myself are doing all we can to push forward the work, and that we shall succeed I am sure.

SOUTH AUSTRALIAN MINING ACT OF 1893.—There is some dissatisfaction among licensed surveyors of Adelaide as to the provisions of the Mining Act of 1893. Complaints have been made as to the inconvenience and trouble the surveyors were put to owing to their having to be appointed under the provisions of the Act. It has been pointed out to us, by a competent authority, that the reason the surveyors are compelled by the clauses to secure a licence is that in time past the scale of charges has been seriously objected to, and to prevent this in the future clauses were put in the Act, making it necessary for all the mining surveyors to be specially appointed, and those appointed have to charge according to a scale laid down in the rules and regulations.—*South Australian Register.*

THE MOUNTAIN MAID UNITED MINE.—The Mountain Maid United is one of the few mines on the field which has been steadily worked for years through wet and dry seasons and financial depressions—a mine in which thousands of pounds have been spent, and from which the shareholders have not received a single sixpence in the shape of dividend. After spending a large amount of capital in prospecting the southern portion of the ground the scene of operation was removed to the northern end. The change proved beneficial, and in the No. 2 shaft a large reef was cut from which better returns were received, and from which, with judicious and economical management, ore will yet be raised that will yield sufficient gold to give the shareholders the long-expected dividends. The present depth of this shaft is 177 feet from the surface, and in the bottom there is a strong reef, heavily mineralised, measuring fully 6 feet. In sinking the reef was vertical to a depth of 142 feet, when it took a dip to the east at an angle of 75°. This made it awkward to work, and should it continue on this course a new shaft will be necessary. However, the reef shows every indication of returning to its old course, and should it do so, far greater progress in sinking will be made, as the present lay of the reef necessitates a large quantity of the footwall being broken down in order to allow the skidway to be carried down. This consequently makes sinking slow and expensive. The first levels were put in at a depth of 76 feet from the surface, and these have been driven respectively to the southern boundary and 90 feet north. From both these levels men are engaged stoping on from 3 feet to 6 feet of stone. At a depth of 142 feet levels were again driven north and south and connected with those above by winzes. A large reef is again visible here, and except in one or two places where it pinches to about 18 inches, there are from 4 to 6 feet of stone in the stopes. At this depth the stone contains more mineral, and pending the erection of additional grinding appliances the manager is not having so much broken, depending for the present more upon the top stopes. In the north level at this depth a winze was started 90 feet in from the shaft, but in consequence of the stone being so heavily mineralised, it was decided to discontinue it until the new pans were erected at the battery. Contractors are, however, sinking a winze on the south side, about 30 feet in from the shaft, and this will be connected with the shaft when a sufficient depth is attained to again open up new levels. The ground cannot be called good to work. It is hard to drill and shoots badly, but with a reef averaging, say, 5 feet, the company should be able to pay dividends on 14 or 15 dwts. to the ton. Substantial roadways are laid down, the ground securely timbered and well ventilated, reflecting great credit on the present manager, Mr. Huddy. There are over 2000 tons of stone in sight, and with the sink going down on a large body of stone, it will not be long before there is as much again. Before the shareholders can hope to receive dividends, the necessary grinding appliances for the efficient treatment of the mineral stone must be produced. In addition to those at present being erected, another half dozen are at least required, and the difference that will then be obtained in the yields will soon pay for them. There are 23 men employed at the mine, who put out between 50 and 60 tons of stone a week. Every piece of stone broken is sent to the mill, and the crushing for the past six weeks total 326 tons for a yield of 287 ounces of gold. Since the above was in type the manager has recommended the sinking of a new shaft 170 feet north, which is about 30 feet in advance of the level. The approximated distance to sink is 75 feet, and he estimates that the work will be done at 30*s.* a foot.—Queensland *Mining News.*

A NEW GOLD-SAVING MACHINE.—Considerable interest has been aroused at Goulburn, New South Wales (says the Goulburn *Evening Star*) by the public trial, under severe conditions, of Jerger's gold-saving and gold-washing machine, an invention devised and patented by the resident there, and which in its public test has given some extraordinary results. The inventor, Mr. Jerger, is a watchmaker and jeweller, who has devoted his mind to inventions, and with great success. Anyone who has stood and watched the waves roll into the shore and recede again, will have noticed that while the receding waters carry back all the débris and heavy matter or bodies the fine sand will be left behind. That is exactly the principle which Mr. Jerger has adopted. The machine has been patented as the "John Jerger Gold Saving and Gold Washing Machine." The patentee claims for it that it is an absolutely perfect contrivance of its kind; that no experience is necessary in the working or management of the machine; and if gold is in the earth the machine will certainly wash it out. The present machine, and the only one in existence, is really but a model, but it serves to show the working of the contrivance equally as well as if constructed on a larger scale. This model consists of a cylinder 4 feet 2 inches long fixed to a wooden frame. The cylinder is about 1 foot in diameter at what may be called the handle end, and tapers off to about 9 inches in diameter at the "cap" or top end. It stands in an inclined position, the grade being very gradual, say about 1½ inch to the foot. The cylinder, however, only acts as a covering for the great secret of the invention, which is really a revolving screw, which runs through the centre of the cylinder. The internal apparatus consists of an iron revolving bar, to which are affixed iron paddles, so ingeniously constructed and arranged as to form a screw formation. A handle attached to a projecting spindle from this screw also supplies the motive power, which is so light and easy that a 12 year old boy can keep the machine working as well as a man. The gold-bearing earth and water are placed in a hopper on the top of the machine, and the revolving screw or paddles carry it upwards, and so mix or crush the earth or "wash" that it is reduced to a slimy mass. Twenty-four revolutions of the screw are all that is necessary to accomplish this, and the process occupies about half a minute. The "matter" thus sent upwards by the force of the screw or paddles will, of course, flow back, or recede in a natural way—that is, down the incline, and as it recedes the specific gravity of the gold carries it to the bottom of the machine, where there are small catchments to retain it. This description really takes in what constitutes the machine; but, to be doubly sure, Mr. Jerger has so constructed the machine that by removing a cap or valve in the lower part of the cylinder the "tailings" pass through a short channel or "sluice" into a rotatory receptacle underneath. From this receptacle, which is covered with cocoanut matting, it is held that it is almost, if not absolutely, impossible to lose gold.

GOLD SAVING IN AUSTRALIA.—One of the great features of the gold mining industry in New South Wales at the present time is the increasing use of gold-saving appliances of various kinds. At the different mines are large heaps of "tailings" or "wash dirt," from which the bulk of the precious metal has been extracted. Hitherto these heaps of mine refuse have been allowed to remain neglected, except by Chinese miners, who have extracted gold in considerable quantities from them. It is now found that, with the use of suitable appliances, the output of gold can be largely increased, by saving the auriferous particles which were formerly allowed to run to waste. In the northern coastal districts large quantities of fine gold are obtained from the sand on the sea-benches, especially after a storm, and it is expected that by substituting machine for hand labour, the gains of the crowds of gold hunters will become considerably augmented.

GUY FAWKES REEF (LIMITED).—The statutory meeting of the shareholders in the Guy Fawkes Reef Company was held on Tuesday, at the offices, Broad-street-avenue, under the presidency of the Chairman, Mr. T. H. Watson.—Addressing the shareholders the Chairman said that, after a great deal of painstaking examination, the board had decided to adopt the Huntingdon gold treating machine, which was generally regarded as being the best kind of machine for that class of ore. This machine was being erected by Messrs. Davey and Paxman, of Colchester. Machinery had also been requisitioned for the purpose of treating the tailings, and the first portion of that machinery was now on board ship, while the whole of it would be on board by Saturday. There was every reason to believe that all their calculations would be fulfilled, but they could not expect any results until after three months working. He had every reason to believe that within 12 months of the starting of the company they would be in a position to declare a substantial dividend.—The proceedings terminated with a vote of thanks to the Chairman.

# THE NEW MINING RULES OF INDIA.

THE following are the new rules sanctioned by the Secretary of State, for a copy of which we are indebted to the editor of the *Madras Mail*.

### Exploring Licenses.

A license to explore land for minerals or mineral oil, called hereinafter an exploring license, will authorise the licensee to search the surface of the land specified in the license for minerals of every description, and for mineral oil, and, subject to such restrictions as the Local Government may from time to time impose, to remove any specimens or samples found by the licensee in or upon such land.*

Such license shall only be granted with respect to land in which the mines, minerals, or mineral oils are the property of the Government, and (subject to the provisions of any law or rule having the force of law, for the time being in force with reference to such land) shall not authorise the licensee to enter upon any land in the occupation of any person without the consent of the occupier.

Such license shall not authorise the licensee to mine or quarry, but he may be permitted to turn up the surface of unoccupied lands, or, with the consent of the occupier, that of land which the Government has granted for agricultural purposes, reserving only the right to minerals to a depth not exceeding 2 feet.

Such license may be granted by such person, and under such rules as the Local Government may prescribe.

Every such license shall run for one year, and there shall be paid for each license such fee, not exceeding Rs. 10, as the Local Government may prescribe.

A royalty shall be payable to Government on the value of all precious stones found and removed by an explorer, whether he has taken out a license or not. In the case of licenses such royalty shall be at such rate, not exceeding 30 per cent., as shall be fixed by the license, and in the case of an unlicensed explorer shall be 30 per cent. on the value of the stones removed. Neglect to report the discovery of any such stone within a reasonable time shall involve the forfeiture of the license and of all claim to have an application for a mining or prospecting lease favourably considered.

Such license shall give no exclusive or preferential rights, but in considering rival claims for a prospecting license or mining lease, due regard will be had to operations conducted under cover of an exploring license.

### Prospecting Licenses.

(1) A license to prospect for minerals or mineral oil, called hereinafter a prospecting license, shall confer on the licensee the sole right, subject to the conditions contained in the license, to mine, quarry, bore, dig and search for, win, work, and carry away any mineral or mineral oil specified in the license, and lying or being within, under, or throughout the land specified in the license.

(2) A prospecting license shall only be granted with respect to land in which the mines, minerals, or mineral oils are the property of the Government, and which is comprised in a compact block, the area of which does not exceed the area specified in Schedule A, and the length of which does not exceed four times its breadth.

When any area has been explored, and its value as a field for mining sufficiently ascertained, the Local Government may refuse to grant prospecting licenses and may order such area to be demarcated into blocks, and may, subject to such rules as the Governor-General in Council may from time to time prescribe, sell by public auction or private contract the right to win and carry away minerals in and from all or any of such blocks for such term or terms not exceeding 30 years and subjected to such conditions, as it may think fit, or may grant mining leases thereof as provided in rules 18 and 19, as it may think fit:

Provided that so such sale as aforesaid shall be made without the previous sanction of the Secretary of State for India in Council if the estimated value thereof exceeds 12 lakhs of rupees.

(1.) No prospecting license shall be granted except to a person approved by the Local Government, and such person shall deposit as security in respect of each license such sum, not being less than Rs. 1000 as the Local Government may determine, or give security to the like amount to the satisfaction of the Collector. Subject to such deduction on account of compensation for surface damage or otherwise as the Collector may order, the amount of any deposit made under this rule will, should the depositor afterwards become the lessee of any mining lease, be carried to his credit as part of the rents and royalties payable under his lease, and should he decline or fail to obtain any such lease as aforesaid, the amount of deposit will be returned to him.

(2.) No prospecting license shall be granted to any Company or to any Syndicate on behalf of a proposed Company without the previous sanction of the Governor-General in Council.

(1.) Every application for prospecting license shall, unless the Local Government shall in any case otherwise direct, be made to the Collector of the district in which the land or some part of the land with respect to which the license is required is situate.

(2.) Every such application shall contain the following particulars, namely:—(*a*) the name, residence, and profession of the applicant; (*b*) a description as accurate as possible, and illustrated by a rough sketch, of the situation, boundaries, and area of the land with respect to which the license is required; and (*c*) a specification of the mineral or minerals for which the applicant desires to prospect.

(3) Every application shall be accompanied by a certificate of approval signed by a Secretary to the Local Government.

On receipt of any such application the Collector shall, as soon as practicable, inquire whether the grant of the license applied for is inexpedient either on the ground that the land described in the application is required for a public purpose, or otherwise.

(1) Should the Collector be of opinion that it is not expedient to grant the license, or should he find the license has not been approved by the Local Government, he shall refuse to grant the license, and shall forthwith report the matter through the proper channel to the Local Government, which may pass orders as it may think fit.

(2) Subject to the control of the Local Government, the Collector, if he finds that there is no objection to the grant of the license applied for, and if the applicant has been approved by the Local Government, may grant to the applicant a license in such form as may be prescribed, and shall report the matter to the Local Government or such other authority as the Local Government may direct.

No licensee shall, while his license is in force, be granted a prospecting license with respect to any other land which lies within such distance of the land covered by his license as is specified in Schedule A:—

Provided that the Local Government may, for special reasons, dispense with or modify this condition.

* NOTE.—The surface of unoccupied and unreserved land which is the property of Government may be freely searched without a license, but the Government does not object to granting a license to explore when one is applied for.

A register of applications for prospecting licenses shall be kept in English in the Collector's Office, specifying—1. Number of application. 2. Date. 3. Name and residence of applicant. 4. Situation of the land. 5. Boundaries. 6. Estimated area. 7. Date of sanction by the Local Government. 8. Date of license. 9. Rent and royalty payable. 10. Period for which granted.

Every prospecting license shall contain such conditions as may in any particular case seem necessary, and shall in all cases contain the following conditions:—

(i) The term for which the license shall be granted shall be one year, or such shorter terms as the applicant may desire. The license may be renewed by the Collector for a further term not exceeding one year, whenever he is satisfied that the licensee has been prevented from completing his search of the land by any cause other than his own default.

(ii) A moderate rent not exceeding one rupee per acre shall be paid for the land covered by the license.

(iii) The licensee shall pay a royalty at a rate not exceeding 30 per cent. of the value on all precious stones won and carried away, and a royalty at rates not less than those specified in Schedule C on all other minerals won and carried away over and above such quantity as the Local Government may allow to be taken free for purposes of experiment.

(iv) No land in the occupation of any person shall be entered upon without the consent of the occupier, and no trees, standing crops, or other private property shall be cut or in any way injured without the consent of the owner thereof.

(v) The licensee shall make and pay reasonable satisfaction and compensatson for all injury which may be done by him in exercise of the powers granted by the license, and shall indemnify the Government against all claims which may be made by third parties in respect of any such damage or injury.

(vi) The licensee shall not cut or injure any tree on unoccupied and unreserved land without the permission of the Collector in writing.

(vii) Neither the licensee nor anyone claiming through or under him shall grant or assign any interest under the license to any person without the previous consent in writing of the Local Government, or to any company without the previous sanction of the Governor-General in Council.

(viii) In case of any breach on the part of the licensee of any of the five last preceding clauses, the Collector may summarily revoke the license, and thereupon all rights conferred thereby or enjoyed thereunder shall cease.

(ix) The licensee shall, within six months next after the determination of the license, or the date of the abandonment of the undertaking, whichever shall first occur, securely plug any bores and fill up or fence any holes or excavations that he may have made in the land to such extent as the Collector may require, and shall to the like extent restore the surface of the land and all buildings thereon which he may have damaged in the course of prospecting. Provided that this clause shall not apply to any land held under a mining lease.

(x) Should any question or dispute arise regarding the license, or any matter or thing connected herewith, or the powers of the licensee thereunder, or the amount or payment of the rent or royalty made payable thereby, the matter in difference shall be decided by the Local Government, whose decision shall be final.

On or before the determination of his license, the licensee shall have a right, subject to the rules hereinafter contained, and provided that the Local Governme it is satisfied that the prospecting has been of a *bona fide* character:—(*a*) in the case of mineral oil or minerals other than precious stones, to a mining lease in accordance with the terms contained in the rules for mining leases; (*b*) in the case of precious stones, to the first offer of such mining lease (if any) as the Governor-General in Council may think fit to grant.

Such lease may include so much land, whether comprising the whole or a part only of the area for which the prospecting license was granted, as shall not exceed the area specified with respect to mining leases in Schedule A annexed to these rules.

### Mining Leases.

(1) Every application for the grant of a mining lease, not being a lease of a mine of precious stones, shall be presented to the Collector in whose District the land or some part of the land with respect to which the lease is applied for is situate. The Collector shall forward the application through the proper channel to the Local Government.

(2) No mining lease shall be granted otherwise than with respect to land in which the mines, minerals, or mineral oils are the property of Government, and no lease of a mine of precious stones shall be granted except by the Governor-General in Council.

(3) No mining lease shall be granted to any Company or to any Syndicate on behalf of a proposed Company without the previous sanction of the Governor-General in Council

19. Every application for a mining lease shall contain—

(*a*) the name, residence, and profession of the applicant;

(*b*) the name of the mineral for which the applicant intends to mine;

(*c*) a map of the area over which the proposed lease is to extend.

20 On receipt of any such application the Local Government may, if it considers that the applicant should be granted a mining lease, grant the same in accordance with these rules over such one or more blocks, each not exceeding in extent the area specified in Schedule A annexed to these rules, as the Local Government may think fit.

No such lease shall be executed until it has been approved by the Advocate-General or other legal advisor, if any, appointed for the Province.

21. Without the previous sanction of the Governor-General in Council, the length of a block shall not be allowed to exceed four times its breadth, nor shall the same lessee be granted either in the same lease or in separate leases more than one block unless the distance between each two of such blocks is not less than that mentioned in the last column of the said Schedule A.

22. The term for which a mining lease may be granted shall not exceed 30 years, and no covenant for renewal may be inserted in the lease without the sanction of the Governor-General in Council.

23. Every such lease shall contain such conditions and stipulations as the Local Government may in each case consider necessary; but shall in every case contain the following conditions, namely:—

(i) the lessee shall pay a royalty as the rate specified in the lease, which rate shall not be lower than that fixed for the particular mineral in Schedule C; and if any other mineral shall be discovered, then royalty shall be paid therefor at such rate, not being less than 20 per cent. of the value thereof, as the Local Government may determine, until a mining lease has been obtained in respect of such mineral; but the lessee shall be entitled to require and obtain such lease for the term then unexpired of his original lease upon the terms hereinbefore mentioned in Rule 17;

(ii) the lessee shall also pay for every year after the first year a fixed yearly dead rent at a rate not less than that laid down in Schedule B; provided that no lessee shall pay both royalty and dead rent in respect of the same lease, but only such one of them as may be the greater in amount;

(iii) the lessee shall also pay for all land which he may take up, use, or occupy for the purpose of the mine a surface rent at the rate specified in Schedule B;

(iv) the lessee shall make and pay reasonable satisfaction and compensation for all injury which may be done by him in exercise of the powers granted by the lease, and shall indemnify the Government against all claims which may be made by third parties in respect of any such injury;

(v) the lessee shall not cut or injure any tree reserved in the lease;

(vi) neither the lessee nor any person claiming through or under him shall assign the lease, or underlet the whole or any portion of the premises comprised in such lease, without the previous consent in writing of the Local Government; and no such assignment or under-lease shall be made to a company without the previous sanction of the Governor-General in Council;

(vii) the lessee shall commence operations within two years from the date of the execution of the lease, and shall thereafter carry them on effectually in a proper, skilful, and mining-like manner unless prevented by unavoidable cause;

(viii) the lessee shall keep correct accounts showing the quantity and particulars of all minerals obtained from the mine, and the number of persons employed therein, and also complete plans of the mine, and shall allow any officer authorised by the Local Government in that behalf at any time to examine such accounts and plans, and shall furnish the Local Government with such information and returns in respect of the aforesaid matters as it may prescribe;*

(ix) the lessee shall allow any officer authorised by the Local Government in that behalf to enter upon the premises comprised in the lease for the purpose of inspecting the same;

(x) the lessee shall without delay send to the collector a report of any accident which may occur at or in the said premises, and also the finding therein of any mineral not specified in the lease;

(xi) should the royalty or rent reserved or made payable by the lease be not paid within 28 days next after the date fixed in the lease for the payment of the same, the Local Government may enter upon the said premises and seize and sell any minerals or movable property therein, and, if the royalty or rent cannot be so recovered, may determine the lease, and take possession of the premises comprised therein;

(xii) in case of any breach on the part of the lessee of any covenant contained in lease, the Local Government may determine the lease and take possession of the said premises;

(xiii) at the end or sooner determination of the lease, the lessee shall deliver up the said premises, and all mines (if any) dug therein in a proper state for working;

(xiv) should any question or dispute arise regarding the lease or any matter or thing connected with the mines and minerals leased, or the working or non-working thereof, or the amount or payment of the royalty or rent reserved or made payable by the lease, the matter in difference shall be decided by the Local Government, whose decision thereon shall be final.

### General Provisions as to Licenses and Leases.

24. No license or lease shall authorise the commencement of any exploration, prospecting, or mining in a reserved forest unless previous notice of such intended commencement shall have been given to the District Forest Officer, and such exploration, prospecting, or mining shall be subject to such conditions as the said officer may prescribe.

* All information and returns obtained or furnished under this clause shall be treated as strictly confidential.

# TIN TICKETING.

A TICKETING for tin ores was held at Redruth, on Tuesday, with the following result:—

VALUES OF ORES SOLD BY EACH MINE.

| | Tons cwts. | Per ton. | Value. |
|---|---|---|---|
| Carn Brea No. 1 | 15 0 | £35 15 0 | £536 5 0 |
| do No. 1a | 14 0 | 35 10 0 | 497 0 0 |
| do No. 1b | 14 0 | 35 15 0 | 500 10 0 |
| do No. 2 | 2 0 | 27 7 6 | 54 15 0 |
| Tincroft | 16 0 | 36 12 6 | 586 0 0 |
| do | 16 0 | 36 17 6 | 590 0 0 |
| do | 3 0 | 31 12 6 | 94 17 6 |
| Wheal Grenville a | 15 0 | 40 5 0 | 618 15 0 |
| do b | 15 0 | 40 15 0 | 611 5 0 |
| do No. 2 | 5 0 | 16 10 0 | 82 10 0 |
| South Frances No. 1 | 16 0 | 40 10 0 | 648 0 0 |
| do No. 1a | 15 0 | 40 15 0 | 611 5 0 |
| Dolcoath No. 1 | 12 0 | 41 0 0 | 492 0 0 |
| do No. 1a | 12 0 | 41 0 0 | 492 0 0 |
| East Pool No. 1 | 16 0 | 35 15 0 | 572 0 0 |
| do No. 2 | 2 0 | 18 5 0 | 36 10 0 |
| Phœnix United No. 1 | 16 0 | 39 2 6 | 626 0 0 |
| do No. 2 | 2 0 | 30 0 0 | 60 0 0 |
| Cook's Kitchen | 16 0 | 41 17 6 | 670 0 0 |
| West Frances | 15 0 | 38 15 0 | 581 5 0 |
| Wheal Basset | 13 0 | 41 10 0 | 539 10 0 |
| Wheal Agar | 12 0 | 36 7 6 | 436 10 0 |
| West Kitty | 12 0 | 42 7 6 | 508 10 0 |
| South Condurrow | 8 0 | 42 2 6 | 337 0 0 |
| Killifreth | 8 0 | 38 12 6 | 309 0 0 |
| | 290 0 | | £11,091 7 6 |

Average price per ton £38 4s. 11d.

AVERAGE PRICES PER TON.

| | | | | | | |
|---|---|---|---|---|---|---|
| April 10 | £41 | 12 | 8 | June 5 | £40 | 0 4 |
| April 24 | 40 | 12 | 3 | June 19 | 39 | 5 6 |
| May 8 | 42 | 0 | 8 | July 3 | 38 | 13 9 |
| May 22 | 41 | 0 | 0 | July 17 | 38 | 4 11 |

A CORRESPONDENT of the *Canadian Colliery Guardian* writes:—"Hearing such good reports from the Kempt Mining Company, I concluded to make a visit to the mines, and drove up the first of the week. I found Mr. Nash taking out very rich ore; he invited me into the mill, where he had a large quantity of very rich sights, some of them almost as much gold as quartz; these he had collected during the past ten days, since they struck the rich deposit. I then visited the mine, which is an open cut about 10 feet wide and 40 feet long, and from which they have taken 50 tons of rich ore, which Mr. Nash is now crushing. Only four men are at work, and they take out about 2 tons every day. The gold is quite coarse in some of the veins; in other pieces it is so fine that you have to use a glass to see it. From this mine I went to the Rozee Mine, a short distance east. Here three men are at work on the same strike. They are down to the bed rock, and expect to strike the rich lead in a few days. I then went west, over to the Fraser Mine. Here they have opened a lead of quartz, about 18 inches thick, but have not found any visible gold, although they expect to when they go down a few feet further on the ledge.

THE COALOWNERS' ASSOCIATION AND THE MINERS' FEDERATION held meetings at the Westminster Palace Hotel on Wednesday. The proceedings in both cases were private.

# GEOLOGY AND MINERALOGY OF SHASTA COUNTY.

By HAROLD W. FAIRBANKS, F.G.S.A
From the Californian State Mineralogist.

XIV.

(*Continued from page 758.*)

SLATE, together with sandstones, forms the country rock for two miles up Dog Creek; strike north and south, dip 30° east. Above these are quartz porphyries, dioritic rocks, and porphyritic conglomerates or tufas, probably eruptive. There are also many dykes of a beautiful diorite porphyrite. The latter rock occurs as dykes and bunches traversing the country everywhere in the vicinity of the Dog Creek Mines, six miles from Delta. At the Dog Creek Mines slate appears again and forms the rock towards the divide. It is cut by dykes of a greenish, slightly porphyritic rock and diorite porphyrite. At the contact of the dykes with slate are the gold-bearing quartz veins. The greater portion of the gold is found in iron sulphurets. Very little development was shown here at the time of my visit; however, the veins do not appear to have a great deal of regularity, often pinching out or being cut off by cross dykes.

Slates are the only rocks exposed along the Sacramento River, between Delta and Slate Creek. The dip and strike are exceedingly various. A large area of serpentine begins north of Slate Creek, and forms the mountains northward between Shasta and Trinity Counties. It is met first about 1½ mile west of the road in the form of more or less small detached masses intruded in the slates. Good exposures cannot be seen on account of the great amount of soil covering the hills. In the serpentine are dykes of white granular mineral, probably malacolite. The serpentine extends west to the county line, the upper waters of Slate Creek heading in it. It is generally massive and hard, with some talcose layers running through it.

In years past considerable placer mining has been done on Tom Neal Mountain. The source of the gold has never been discovered, but it is quite likely that it has been derived from the talcose strata in the serpentine, which in some places prospects a little. The gold has a black coating, which is proof of its origin in the serpentine. Traces of silver have also been found. At one spot a tunnel was run in an attempt to find the veins. It cut a diorite dyke and serpentine schist, which is full of large cubical pyrite crystals. Other dykes of malacolite were also seen here running north and south. South of Boulder Creek another dyke of this rock was found. It contains scaly molybdenite disseminated through it, forming a very pretty rock. Very beautiful specimens of foliated talc were found in the serpentine on Boulder Creek. The talk layers often contain pseudomorphs of calcite after pyrite. Octahedrons of magnetite are also numerous in some of the calc schists. Actinolite is also found here. These crystals are not found in the massive serpentinoid rocks. Chromite occurs in spots, but not in sufficient amount to work. North of Little Slate Creek the serpentine approaches nearer the Sacramento River, and at Portuguese Flat it appears by the road. It continues to crop along the west side of the river as far as Southern's. It is generally bordered by altered diorites or green schists. The diorite forms high mountains east of the river. The mountains formed of diorite are more heavily timbered than those of serpentine, and the serpentine supports a better growth than the slates. The diorite extends a mile up Hazel Creek, and is there replaced by slates, which strike a little east of north, dip 50° to 60° east. The slates, together with much metamorphic rock like that on the McCloud, extend eastward to the head of the creek. Placer mining has been carried on for many years along this creek, but no veins have been found, though quartz is abundant.

Bunches of very coarse hornblendic rock are scattered through the serpentine, and in places it becomes gradually finer, blending into the serpentine. Although a large part of the serpentine of the State has been derived from pyroxene and olivine, yet I believe that this body, forming the mountains west of the Sacramento, and extending into Trinity County, have resulted chiefly from the alteration of hornblendes with some feldspar and olivine. Chromite is mined in places along the west side of the Sacramento River, and occurs abundantly in the washed gravels in the valley. The lava table land continues along the river, chiefly on the west side, and while it decays to form a very fertile soil, yet makes an exceedingly rough road. North of Southern's the serpentine retreats to the north-west, and syenitic gneiss takes its place along the river. Five miles north of Southern's this strikes east and west, and dips at a high angle to the south. Near this point the river rises rapidly, and from there to its source flows on the lava which fills its ancient channel, instead of cutting through it. The lava gradually widens towards the north, and only in places is the bed rock exposed near the river. A fine view of the Crags is to be had from the mouth of Castle Creek. The creek is full of a great variety of granitoid and serpentine boulders. Serpentine is found in places less than a mile up the creek. Its extent westward is about seven miles, when it is succeeded by slate to the top of the divide. The slate strikes a little north of west, dip 30° north. The serpentine shows much variation, and has associated with it coarse and fine diorites. The serpentine extends many miles north-west into Siskiyou County.

The granitic rocks of Castle Crags are on the boundary between Shasta and Siskiyou Counties. They consist of jagged pinnacles, presenting the appearance of having been shattered vertically. The rock varies greatly in texture and composition; from that which is fine grained with more hornblende than mica and little quartz, to coarse porphyritic varieties with pink orthoclase in large finely formed crystals, and much biotite. In another direction it approaches quartz feldspar porphyry, having but little mica or hornblende. The peaks approach within a mile of the river.

At the Washington Mine the dykes are numerous, and vary from a dark, fine grained variety with large porphyritic crystals of feldspar to those with an almost granitic structure. The Niagara is much higher up the hill, but is in a similar formation, the rock being porphyry of different kinds. Long cross cut tunnels show the country rock very well. Four veins have been worked. The main Niagara vein, as well as the others, runs east and west, parallel to rather irregular dykes. The main veins dip to the south; one of the others to the north. In the lowest tunnel no vein appears. The character of the walls in the deepest workings is not distinguishable from those in the tunnel, 200 feet above where the vein is prominent, sometimes swelling to 10 feet, at others pinching to a seam of crushed porphyry. Bunches of slate crushed to black shining masses are inclosed in the porphyry. These are very irregular, and wherever they encroach on the vein it loses its gold to a great extent. The bunches of slate are sometimes very small, but at the lower tunnel near the entrance is a mass several hundred feet thick. The walls of the northern vein are somewhat different from each other. The north wall is a felsite—the southern a coarse diorite porphyrite.

(*To be continued.*)

EDWIN BRAY GOLD MINING COMPANY (LIMITED).—An extraordinary general meeting of this company was held at Cannon-street Hotel, on Thursday, when the resolutions for the reconstruction, passed at an extraordinary general meeting held on Wednesday, June 4, were confirmed, there being only one dissentient.

THE COAL TRADE.—It is thought by the Scotch coalmasters that the strike is nearing the end, as the men are bitter in their disappointment at the poorness of the strike allowance. Some of the Lanarkshire masters estimate that the pits will be reopened on Monday next, and that the non-union men will be first engaged. They take this course to tempt the men to descend, saying that they cannot give employment to all miners, as they have lost many of their best customers for ever. The loyal miners say that they will not work till their demands are conceded. At Monday's meeting of the Yorkshire Miners' Council at Barnsley, the returns from the various lodges on the question of accepting terms recommended by the federation were presented. It was found that there was a majority of about one-third in favour of accepting the terms. At a meeting of the Fife Miners' Executive Board on Monday, it was agreed to recommend that £500 should be set aside for the benefit of non-unionists in the county now on strike. It was further decided that the support should be given not in money, but in provisions. A prolonged meeting of the South Yorkshire coalowners was held at Sheffield on Monday, when the question of wages and the future of the coal trade came under consideration. The meeting was private, and the only information conveyed to the reporters was that the result of the deliberations would be communicated to the conciliation board at the meeting in London. It is stated, however, that many members favour a larger reduction than 10 per cent., and that they object to the proposed minimum wage which some coalowners favour. The final result of the Derbyshire miners' ballot, as declared on Wednesday morning, shows that not more than one-third of the men have voted. Twenty-six thousand ballot papers were issued, but only 9488 have been returned. The actual voting was—for the proposed minimum of wage, 4907; and for going before Lord Shand without fixed minimum, 4581, giving a majority of 326 in favour of accepting the owners' proposal. Mr. T. Glover, miners' agent for the St. Helen's district of the Lancashire and Cheshire Miners' Federation, having discussed with the men the proposals for a two years' settlement of the coal trade dispute, and urged them to accept them, the men have decided almost unanimously to agree to the proposals. At a meeting of the Scottish Miners' Federation in Glasgow, on Wednesday, delegates from the various districts reported that the men remained idle, and it was determined to continue the strike till a settlement on fair terms could be obtained.

THE FIRST PURE CHROMIUM.—Professor Moissan (writes the Paris correspondent of the *Daily News*) has succeeded with his electrical furnace in preparing for the first time chromium in a pure state. On Monday, before the Academy of Sciences, he was able to show his colleagues the relatively large quantity of 40 lbs. of this rare metal. It is entirely free from carbon, does not scratch glass, can be filed easily, and is whiter than iron. It is untarnishable, and acids have no action on it. At red heat, however, it decomposes, carbon dioxide and monoxide forming a carbide with the carbon. This explains the failure hitherto to obtain chromium free from carbon. Professor Moissan purifies it in his electric stove in presence of a double oxide of calcium and chromium. Professor Moissan's researches open a new field for this metal. The wonderful degree of hardness imparted by chromium to steel is a well known property. M. Moissan exhibited to the Academy new alloys of chromium with aluminium and copper which are tough, malleable, and untarnishable.


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By order, U. P. HARRIS, Secretary.
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No. 15, Old Jewry Chambers, E.C., 13th July, 1894.

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| ‡§Greek (twinsc'w) | — | July 31 | Aug. 4 | Aug. 11 |
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GOLD MEDAL, LONDON, 1892.
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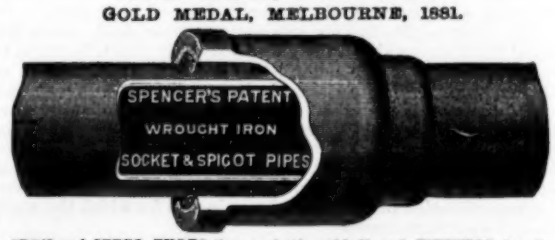


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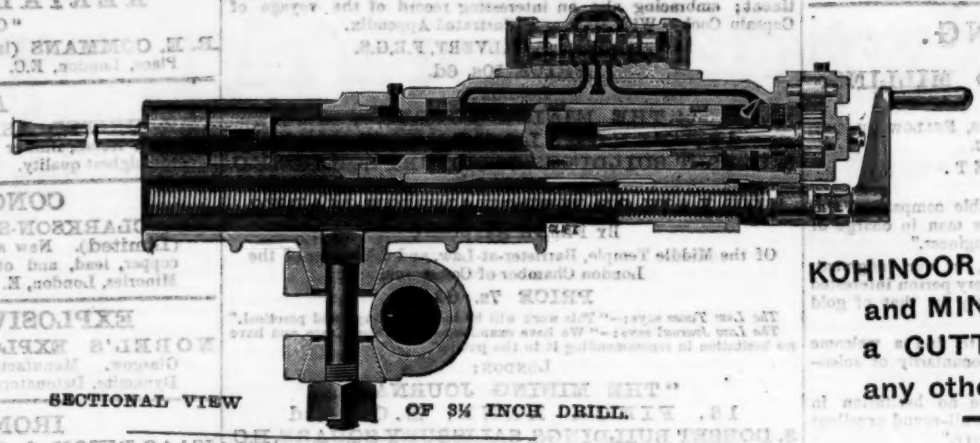

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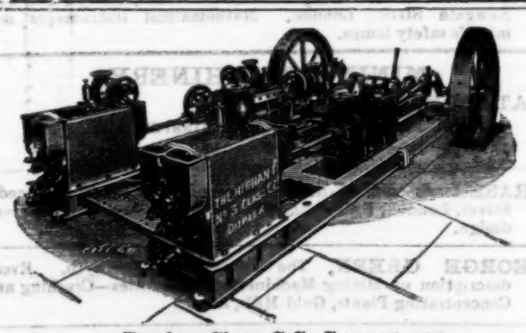

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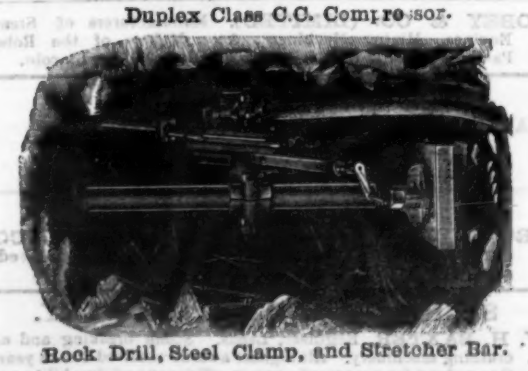

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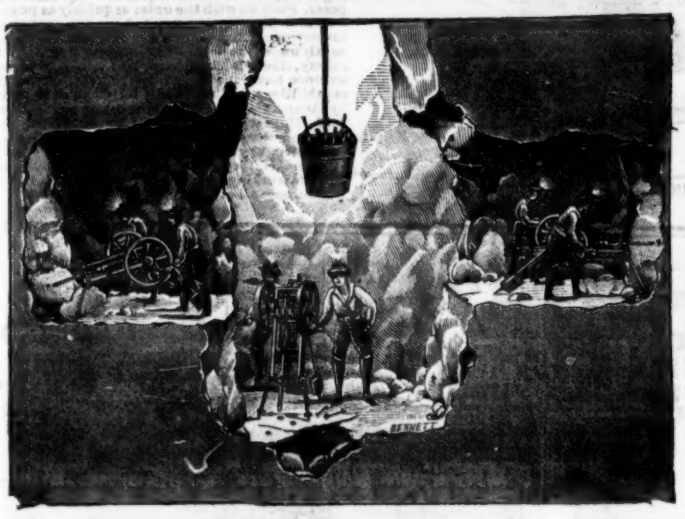

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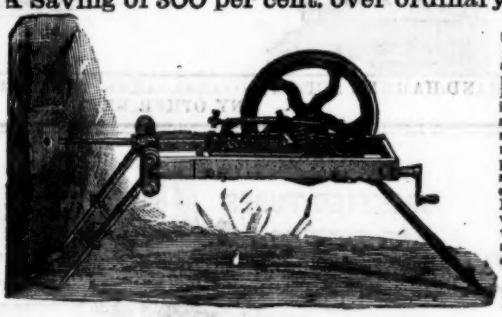

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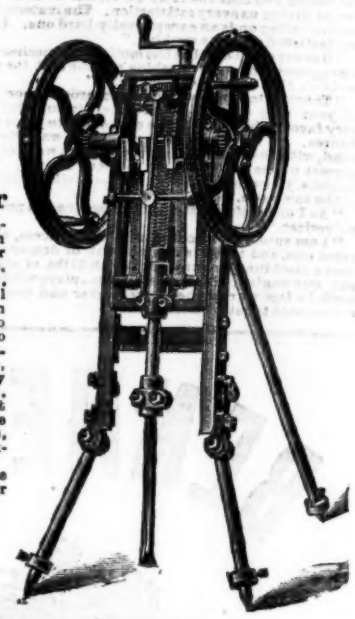

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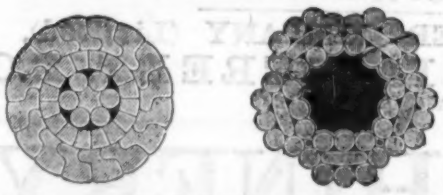

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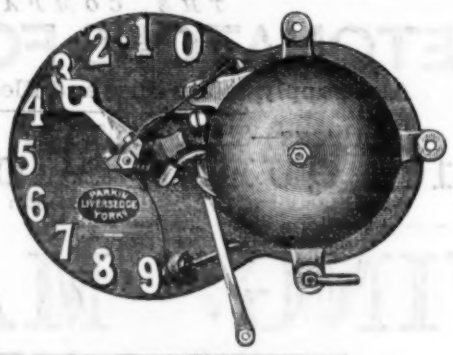


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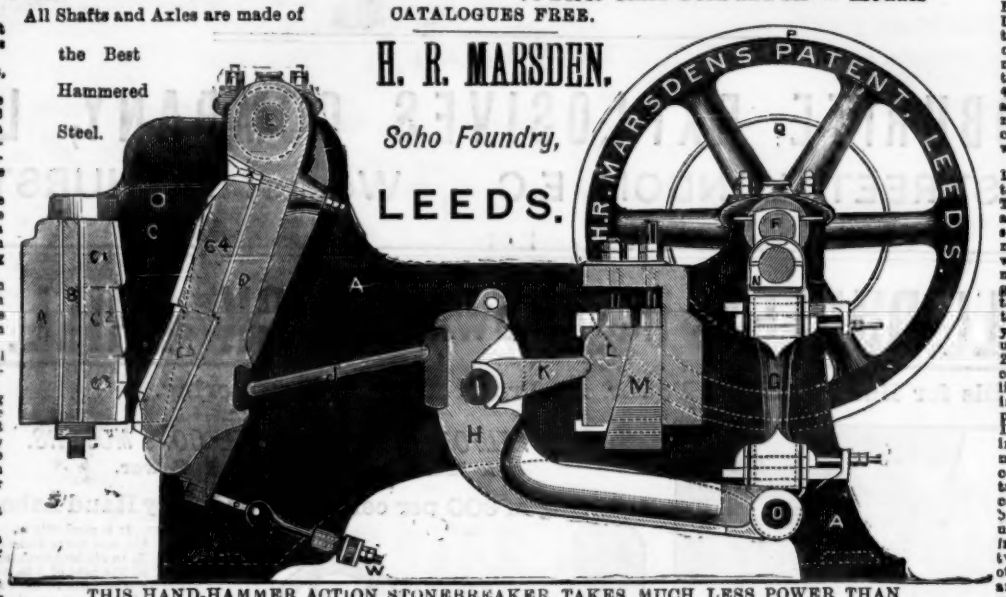


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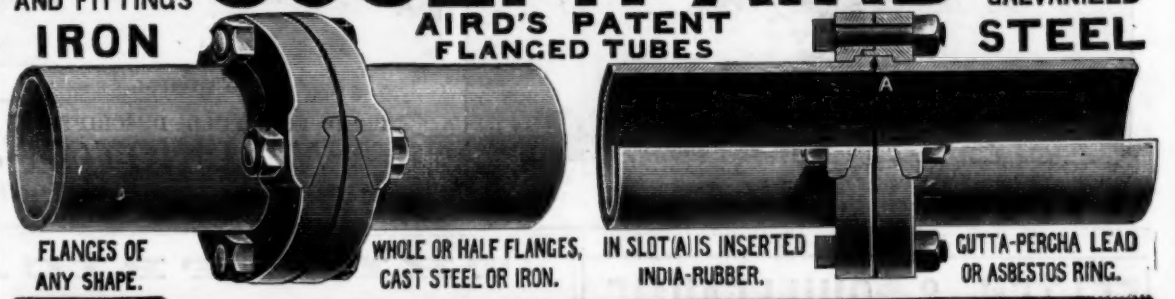


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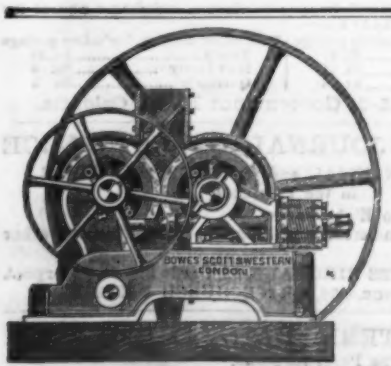


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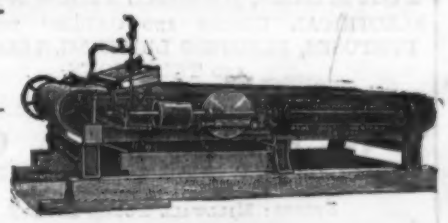

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